Construction Notice
East Lima-Maddox Creek 345kV Transmission Line Project

PUCO Case No. 20-0710-EL-BNR

Submitted to:
The Ohio Power Siting Board
Pursuant to Ohio Administrative Code Section 4906-6-05

Submitted by:
AEP Ohio Transmission Company, Inc.

April 22, 2020
Construction Notice for East Lima-Maddox Creek 345 kV Transmission Line Project

Construction Notice

AEP Ohio Transmission Company, Inc. (AEP Ohio Transco)
East Lima-Maddox Creek 345 kV Transmission Line Project

4906-6-05

AEP Ohio Transmission Company, Inc. ("AEP Ohio Transco" or the "Company") provides the following information in accordance with the requirements of Ohio Administrative Code Section 4906-6-05.

4906-6-5(B) General Information

B(1) Project Description

The name of the project and applicant's reference number, names and reference number(s) of resulting circuits, a brief description of the project, and why the project meets the requirements for a Letter of Notification.

AEP Ohio Transco proposes the East Lima-Maddox Creek 345 kV Transmission Line Project ("Project"), located in Allen and Putnam Counties, Ohio. The Project involves replacing Structures 27 and 75 on existing centerline with single circuit steel monopole dead-end structures. The existing double circuit lattice towers (with only one circuit installed) will be removed. This Project is to be completed as part of the East Lima-Maddox Creek 345kV Transmission Line Reconductoring Project (Case No. 19-1781-EL-BLN). The proposed Project location is illustrated in Map 1 in Appendix A.

The Project meets the requirements for a Construction Notice (CN) because it is within the types of projects defined by item 2(a) of Ohio Administrative Code Section 4906-1-01 Appendix A of the Application Requirement Matrix for Electric Power Transmission Lines:

(2) Adding new circuits on existing structures designed for multiple circuit use, replacing conductors on existing structures with larger or bundled conductors, adding structures to an existing transmission line, or replacing structures with a different type of structure, for a distance of:

   a. Two miles or less

The Project has been assigned PUCO Case No. 20-0710-EL-BNR.
B(2) Statement of Need

If the proposed project is an electric power transmission line or gas or natural gas transmission line, a statement explaining the need for the proposed facility.

In Case No. 19-1781-EL-BLN, the Company proposed the East Lima-Maddox Creek 345 kV Transmission Line Reconductoring Project, which is a baseline project necessary to resolve a reliability criteria violation along the East Lima-Maddox Creek 345 kV circuit. In PJM’s 2016 and 2017 Winter Generation Deliverability analysis, the East Lima-Maddox Creek 345 kV circuit was found to be overloaded beyond its capability for the single contingency loss of the Marysville – Sorenson 765 kV circuit during winter conditions. The East Lima-Maddox Creek 345 kV Transmission Line Reconductoring Project resolves the reliability criteria violation and is the most cost effective long-term solution.

While completing the East Lima-Maddox Creek circuit reconductoring as part of the above-referenced project, the Company determined that the approved outages created constructability constraints. To address the constructability constraints, the Company is required to replace existing Structures 27 and 75 with dead-end structures to utilize an additional outage. The additional outage will allow the company to complete the East Lima-Maddox Creek 345 kV Transmission Line Reconductoring Project in the most efficient and safe manner.

The locations of the replacement structures are provided in Appendix A.

B(3) Project Location

The applicant shall provide the location of the project in relation to existing or proposed lines and substations shown on an area system map of sufficient scale and size to show existing and proposed transmission facilities in the Project area.

Maps 2A-2B show the location of the Project area in relation to the existing East Lima-Maddox Creek transmission line.

B(4) Alternatives Considered

The applicant shall describe the alternatives considered and reasons why the proposed location or route is best suited for the proposed facility. The discussion shall include, but not be limited to, impacts associated with socioeconomic, ecological, construction, or engineering aspects of the project.

As an alternative, the Company considered maintaining Structures 27 and 75 as tangent towers and completing the reconductor work within three outages pursuant to Case No. 19-1781-EL-BLN. This alternative would have required additional construction equipment and risked an extension of one or more of the planned outages. However, the Project avoids these construction and outage risks, reduces land use impacts associated with the current structures, and supports the work to be completed as part of the East Lima-Maddox Creek 345 kV Transmission Line Reconductoring Project addressing the baseline criteria violation along the East Lima-Maddox Creek 345 kV circuit. Further, as the new structures will be placed within the centerline of the existing East Lima-Maddox Creek 345 kV Transmission Line, there will be no additional impacts to any areas outside of the existing right-of-way (ROW) corridor. Therefore, the
Project is best suited for the proposed facility. Socioeconomic, land use, and ecological information is presented in Section B(10).

B(5) Public Information Program

The applicant shall describe its public information program to inform affected property owners and tenants of the nature of the project and the proposed timeframe for project construction and restoration activities.

AEP Ohio Transco maintains a website (http://aeptransmission.com/ohio/) on which an electronic copy of this CN is available. A paper copy of the CN will be served to the public library in each political subdivision affected by this Project.

B(6) Construction Schedule

The applicant shall provide an anticipated construction schedule and proposed in-service date of the project.

Construction of the Project is planned to begin in third quarter of 2020, and the anticipated in-service date will be November 2021.

B(7) Area Map

The applicant shall provide a map of at least 1:24,000 scale clearly depicting the facility with clearly marked streets, roads, and highways, and an aerial image.

Map 1 in Appendix A provides the proposed Project area on a map of 1:190,080-scale (1 inch equals 3 miles), and provides the locations of the two structures to be replaced and the approximately 30-mile long existing East Lima-Maddox Creek 345 kV transmission line, and the East Lima and Maddox Creek substations on the United States Geological Survey (USGS) 7.5-minute topographic map of the Scott, Ohio, Wetsel, Ohio, Ottoville, Ohio, Delphos, Ohio, Elida, Ohio, and Cairo, Ohio quadrangles. Maps 2A-2B in Appendix A show the Project area on recent aerial photography, as provided by Bing Maps at a scale of 1:12,000-scale (1 inch equals 1,000 feet).

To visit Structure 27 from Columbus, Ohio, take I-70 West to I-270 North towards Cleveland for approximately 9 miles. Take Exit 17B to merge onto Ohio State Route 161 West/U.S. 33 West. Follow U.S. 33 for approximately 46.5 miles. Exit onto OH-117 West towards OH-366/Huntsville/Lima and follow OH-117 West for 23 miles. Turn right onto S Thayer Road and follow US-30 W to OH-65N/Ottawa Road for 10 miles, then take the OH-65 exit from US-30 W. Follow OH-65N/Ottawa Road for 1.5 miles and turn left onto Hook-Waltz Rd E. structure 25 will be on the right.

To visit Structure 75 from Columbus, Ohio, take I-70 West to I-270 North towards Cleveland for approximately 9 miles. Take Exit 17B to merge onto Ohio State Route 161 West/U.S. 33 West. Follow U.S. 33 for approximately 46.5 miles. Exit onto OH-117 West and follow for 23 miles, then turn right on S Thayer Road and follow for 8 miles. Turn left onto US-30 W for 18.5 miles and take the OH-66 exit towards Ottoville/Delphos. Turn right onto OH-66 N and follow for about 1 mile. Turn right onto Carpenter Rd and follow for 1 mile. Turn left onto Township Rd-23Q, and structure 75 will be on the left.
B(8) Property Agreements

The applicant shall provide a list of properties for which the applicant has obtained easements, options, and/or land use agreements necessary to construct and operate the facility and a list of the additional properties for which such agreements have not been obtained.

The Project area is located within existing right-of-way (ROW). No new permanent ROW is necessary.

B(9) Technical Features

The applicant shall describe the following information regarding the technical features of the project:

B(9)(a) Operating characteristics, estimated number and types of structures required, and right-of-way and/or land requirements.

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<tr>
<td>Voltage:</td>
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<tr>
<td>Conductors:</td>
<td>2- 954 kcmil 54/7 ACSS Cardinal (double bundled conductor)</td>
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<tr>
<td>Static Wire:</td>
<td>OPGW, 0.646in Diameter</td>
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<td>Insulators:</td>
<td>Ceramic/Glass</td>
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<tr>
<td>ROW Width:</td>
<td>150 Feet</td>
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<tr>
<td>Existing structure types:</td>
<td>Structures 27 and 75 are currently double circuit lattice towers (holding only one circuit). These structures are to be removed.</td>
</tr>
<tr>
<td>Replacement Structure:</td>
<td>New Structure 27 and 75 to be installed are single circuit steel monopole dead-end structures.</td>
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B(9)(b) Electric and Magnetic Fields

For electric power transmission lines that are within one hundred feet of an occupied residence or institution, the production of electric and magnetic fields during the operation of the proposed electric power transmission line.

No occupied residences or institutions are located within 100 feet of the Project.

B(9)(b)(ii) Design Alternatives

A discussion of the applicant's consideration of design alternatives with respect to electric and magnetic fields and their strength levels, including alternate conductor configuration and phasing, tower height, corridor location, and right-of-way width.

No occupied residences or institutions are located within 100 feet of the Project.

B(9)(c) Project Cost

The estimated capital cost of the project.

The Project's cost are approximately $300,000 (material and labor). However, as a result of this Project, the overall cost of the East Lima-Maddox Creek 345 kV Transmission Line Reconductoring Project (including the cost of the Project) will remain approximately $37,000,000 as previously filed in Case No. 19-1781-EL-BLN, from Class 3 and 4 estimates.

B(10) Social and Economic Impacts

The applicant shall describe the social and ecological impacts of the project:

B(10)(a) Land Use Characteristics

Provide a brief, general description of land use within the vicinity of the proposed project, including a list of municipalities, townships, and counties affected.

The Project consists of replacing Structures 27 and 75 on the East Lima-Maddox Creek 345kV Transmission line. The structure replacements will be completed by traditional construction methods. Structure 27 is within Monroe Township, Allen County, Ohio, and Structure 75 is within Fort Jennings, Putnam County, Ohio. The structures are located on parcels used as farm fields. Tree clearing is not anticipated and in-water work is not planned for the Project. There are no other churches, schools, parks, preserves, or wildlife management areas located within 1,000 feet of the project.
B(10)(b) Agricultural Land Information

Provide the acreage and a general description of all agricultural land, and separately all agricultural district land, existing at least sixty days prior to submission of the application within the potential disturbance area of the project.

Structure 27 is on a parcel with the land use code of “110 Agricultural Vacant Land Qualified for Current Agricultural Use Valuation (CAVU)” according to the Allen County Auditor. Structure 75 is also listed with the land use code of “110 Agricultural Vacant Land Qualified for CAVU” according to the Putnam County Auditor. The structure replacements proposed have limited impacts to the agricultural use of the land. The Project will reduce land use impacts as existing lattice structures will be removed and replaced with the steel monopoles which have smaller foundations. No farmland conversions are anticipated for this Project.

B(10)(c) Archaeological and Cultural Resources

Provide a description of the applicant’s investigation concerning the presence or absence of significant archaeological or cultural resources that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

A cultural report was completed as part of the 19-1781-EL-BLN filing. The information in this report has not changed for this Project, as the structure replacements are proposed on centerline. The State Historic Preservation Office coordination letter is found under Appendix C.

B(10)(d) Local, State, and Federal Agency Correspondence

Provide a list of the local, state, and federal governmental agencies known to have requirements that must be met in connection with the construction of the project, and a list of documents that have been or are being filed with those agencies in connection with siting and constructing the project.

As part of the 19-1781-EL-BLN filing, a Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHCD000005. No additional impacts are proposed as a result of this Project. AEP Ohio Transco will also coordinate storm water permitting needs with local government agencies, as necessary. AEP Ohio Transco will implement and maintain best management practices as outlined in the Project-specific Storm Water Pollution Prevention Plan to minimize erosion control sediment to protect surface water quality during storm events.

There are no other known local, state, or federal requirements that must be met prior to commencement of the proposed Project.
B(10)(e) Threatened, Endangered, and Rare Species

Provide a description of the applicant’s investigation concerning the presence or absence of federal and state designated species (including endangered species, threatened species, rare species, species proposed for listing, species under review for listing, and species of special interest) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

As part of the 19-1781-EL-BLN filing, the United States Fish and Wildlife Service (USFWS) Ohio County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species (available at) was reviewed to identify the threatened and endangered species known to occur in the Project counties. Based on the primarily agricultural nature of the Project area, and no anticipated tree clearing and in-water work, no impacts to state or federally listed species are anticipated. Additional details regarding species are provided in Appendix B.

B(10)(f) Areas of Ecological Concern

Provide a description of the applicant’s investigation concerning the presence or absence of areas of ecological concern (including national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

As part of the 19-1781-EL-BLN, AEP Ohio Transco’s consultant prepared a Wetland Delineation and Stream Assessment Report. No impacts to wetlands or streams are anticipated. Copies of the Wetland Delineation and Stream Assessment Reports for the Project are included as Appendix B. There are no additional impacts proposed as a result of this Project.

B(10)(g) Unusual Conditions

Provide any known additional information that will describe any unusual conditions resulting in significant environmental, social, health, or safety impacts.

To the best of AEP Ohio Transco’s knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.
Structure to be Replaced
East Lima-Maddox 345kV Transmission Line Existing
Transmission Line (69kV and Below)
Existing Transmission Line (115 - 230kV)
Existing Transmission Line (345kV and Above)

Data Sources: AEP (2019), USGS (2018), ESRI (2013)
Coordinate System:
State Plane Ohio North NAD 83

April 21, 2020

Map 2A
Aerial Imagery of Project Area
Structure to be Replaced

- East Lima-Maddox 345kV Transmission Line Existing
- Transmission Line (69kV and Below)
- Existing Transmission Line (115 - 230kV)
- Existing Transmission Line (345kV and Above)

Data Sources: AEP (2019), USGS (2018), ESRI (2013)

Coordinate System:
State Plane Ohio North
NAD 83

April 21, 2020

Map 2B
Aerial Imagery of Project Area

East Lima-Maddox 345kV Transmission Line Project

0 500 1,000 2,000 Feet
APPENDIX B

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT
EAST LIMA-MADDOX 345KV RECONDUCTORING PROJECT, ALLEN, PUTNAM, AND VAN WERT COUNTIES, OHIO

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT

Prepared for:
American Electric Power Ohio Transmission Company
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Gahanna, Ohio 45230

Prepared by:
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525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Project #: 60601386
September 2019
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APPENDIX B OEPA Wetland ORAM Forms
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**LIST OF ACRONYMS and ABBREVIATIONS**

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<th>Acronym</th>
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<tr>
<td>AECOM</td>
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<tr>
<td>DBH</td>
<td>Diameter at Breast Height</td>
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<tr>
<td>DOW</td>
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1.0 INTRODUCTION

American Electric Power Ohio Transmission Company (AEP Ohio Transco) is re-conductoring approximately 30 miles of 345 kV line between East Lima Station to Maddox Station through Allen, Putnam, and Van Wert Counties, Ohio (Project). AECOM understands that AEP intends to replace only nine non-consecutive steel lattice towers of the 127 total structures. Approximately 3.2 miles of access roads to these nine steel lattice towers will also be required. The remaining portion of the Project will be re-conducted utilizing helicopters. In addition to work areas for structure replacements, AEP requires additional work pad areas ranging in size from 50’x50’ to 50’x100’ in the vicinity of approximately 18 other structures. Also, 100’x100’ helipads will be required about every two miles along the project. The proposed Project location is illustrated on Figure 1.

The purpose of the field survey was to assess whether wetlands and other “waters of the United States (U.S.)” exist within the Project survey area. Secondarily, land uses were recorded to classify and characterize potential habitat for rare, threatened, and endangered species. This report will be used to assist AEP Ohio Transco’s efforts to identify potential waters of the U.S. and rare, threatened and endangered species habitat potentially present within the Project survey area and methods to avoid or minimize impacts to the resources during construction activities.

2.0 METHODOLOGY

Prior to conducting field surveys, digital and published county U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and U.S. Geological Survey (USGS) 7.5-minute topographic maps were reviewed to identify the occurrence and location of potential wetland areas.

In September 2019, AECOM ecologists walked the Project survey area to conduct a wetland delineation and stream assessment. The Project survey area includes a 25-foot corridor around access roads and work pads in addition to a 100-foot radius? area around replacement structures. During the field survey, the physical boundaries of observed water features were recorded using sub-decimeter capable Trimble Global Positioning System (GPS) units. The GPS data was imported into ArcMap Geographic Information System (GIS) software, where the data was then reviewed and edited for accuracy. Land uses observed within the Project survey area were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys.

2.1 WETLAND DELINEATION

The Project survey area was evaluated according to the procedures outlined in the U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual (1987 Manual) (Environmental Laboratory, 1987)
as well as the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Version 2.0) (*MW Regional Supplement*) (USACE, 2010), or the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0) (*NCNE Regional Supplement*), which ever was applicable. The *Regional Supplements* were released by the USACE in August 2010 and January 2012, respectively, to address regional wetland characteristics and improve the accuracy and efficiency of wetland delineation procedures. The 1987 Manual and Regional Supplements define wetlands as areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters give way to upland characteristics.

Since quantitative data were not available for any of the identified wetlands, AECOM utilized the routine delineation method described in the 1987 Manual and Regional Supplement that consisted of a pedestrian site reconnaissance, including soils identification, geomorphologic assessment of hydrology, identification of vegetative communities, and notation of disturbance. The methodology used to examine each parameter is described in the following sections.

### 2.1.1 SOILS

Soils were examined for hydric soil characteristics using a spade shovel to extract soil samples. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 2010) was used to identify the hue, value, and chroma of the matrix and mottles of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (Environmental Laboratory, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

### 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 Supplements state that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-in. depth) is 41-degree Fahrenheit (°F) or higher as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The Regional Supplements also state that if onsite data gathering is not practical, the growing season can be approximated by the number of days between the average (five years out of 10, or 50 percent probability) date of the last and first 28° F air temperature in the spring and fall, respectively. The National Weather
Service WETS data obtained from the NRCS National Water and Climate Center reveals for Allen County that in an average year, this period lasts from April 10 to November 3, or 207 days. In Putnam County, in an average year, this period lasts from April 15 to October 27, or 195 days. In Van Wert County, in an average year, this period lasts from April 10 to October 31, or 205 days. In the Project area, five percent of the growing season equates to approximately ten days.

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the 1987 Manual and the Regional Supplements. 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, 2012).

2.1.3 VEGETATION

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), FAC, facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the U.S. Army Corps of Engineers 2016 National Wetland Plant List: Midwest Region (Lichvar et al, 2016) and the 2016 National Wetland Plant List: Northcentral and Northeast Region (Lichvar et al, 2016), which encompass the area of the Project survey area. An area is determined to have hydrophytic vegetation when, under normal circumstances, more than 50 percent of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when 50 percent or more of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation. Recent USACE guidance indicates that to the extent possible, the hydrophytic vegetation decision should be based on the plant community that is normally present during the wet portion of the growing season in a normal rainfall year (USACE, 2010 and USACE, 2012).

2.1.4 WETLAND CLASSIFICATIONS

Wetlands were classified based on the naming convention found in Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al, 1979). There are five main classes of wetlands and deepwater habitats. They include: marine, estuarine, riverine, lacustrine, and palustrine. Marine and estuarine wetlands are not found in this area of the U.S. Freshwater, Palustrine systems, which includes non-tidal wetlands dominated by trees, shrubs, or emergent vegetation, are potential wetland types which may be identified within the Project area. The possible palustrine wetland classification types are as follows:
PEM – Palustrine emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

PSS – Palustrine scrub/shrub wetlands are characterized by woody vegetation that is less than three inches diameter at breast height (DBH), and greater than 3.28 feet tall. The woody angiosperms (i.e. small trees or shrubs) in this broad-leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.

PFO – Palustrine forested wetlands are characterized by woody vegetation that is three inches or more DBH, regardless of total height. These wetlands generally include an overstory of broad-leaved and needle-leaved trees, an understory or young saplings and shrubs, and an herbaceous layer.

PUB – Palustrine unconsolidated bottom wetlands includes all open water wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones, and a vegetative cover less than 30 percent. Palustrine open water wetlands are characterized by the lack of large stable surfaces for plant and animal attachment.

For some wetlands, multiple Cowardin classifications may be present where more than one classification’s vegetation is dominant (vegetation covers 30 percent or more of the substrate). Where multiple Cowardin classifications are present, the Cowardin classification of the plants that constitute the uppermost layer of vegetation is listed.

2.1.5 OHIO RAPID ASSESSMENT METHOD v. 5.0

The Ohio Environmental Protection Agency (OEPA) Ohio Rapid Assessment Method for Wetlands v. 5.0 (ORAM) was developed to determine the relative ecological quality and level of disturbance of a particular wetland in order to meet requirements under the Clean Water Act Section 401 Certification. Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories under the ORAM 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).
Category 1 Wetlands

Category 1 wetlands support minimal wildlife habitat, hydrological and recreational functions, and do not provide for or contain critical habitats for threatened or endangered species. In addition, Category 1 wetlands are often hydrologically isolated and have some or all of the following characteristics: low species diversity, no significant habitat for wildlife use, limited potential to achieve wetland functions, and/or a predominance of non-native species. These limited quality wetlands are considered to be a resource that has been severely degraded or has a limited potential for restoration, or, is of low ecological functionality.

Category 2 Wetlands

Category 2 wetlands "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Category 2 wetlands constitute the broad middle category of "good" quality wetlands, and can be considered a functioning, diverse, healthy water resource that has ecological integrity and human value. Some Category 2 wetlands are lacking in human disturbance and considered to be naturally of moderate quality; others may have been Category 3 wetlands in the past but have been degraded to Category 2 status.

Category 3 Wetlands

Wetlands that are assigned to Category 3 have "...superior habitat, or superior hydrological or recreational functions." They are typified by high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide. A wetland may be a Category 3 wetland because it exhibits one or all of the above characteristics. For example, a forested wetland located in the flood plain of a river may exhibit “superior” hydrologic functions (e.g., flood retention, nutrient removal), but not contain mature trees or high levels of plant species diversity.

2.2 STREAM ASSESSMENT

Regulatory activities under the Clean Water Act provide authority for states to issue water quality standards and “designated uses” to all waters of the U.S. upstream to the highest reaches of the tributary streams. In addition, the Clean Water Act requires knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters. Streams were identified by the presence of a defined bed and bank, and evidence of an ordinary high water mark (OHWM). The USACE defines OHWM as “that 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).

Stream assessments were performed using one of two methods:

- OEPA’s Methods for Assessing Habitat in Flowing Waters: Using OEPA’s Qualitative Habitat Evaluation Index (Rankin, 2006), or


### 2.2.1 OEPA QUALITATIVE HABITAT EVALUATION INDEX

The Qualitative Habitat Evaluation Index (QHEI) is designed to provide a rapid determination of habitat features that correspond to those physical factors that most affect fish communities and which are generally important to other aquatic life (e.g., macroinvertebrates). The quantitative measure of habitat used to calibrate the QHEI score are Indices (or Index) of Biotic Integrity (IBI) for fish. In most instances the QHEI is sufficient to give an indication of habitat quality, and the intensive quantitative analysis used to measure the IBI is not necessary. It is the IBI, rather than the QHEI, that is directly correlated with the aquatic life use designation for a particular surface water, per OEPA regulations.

The QHEI method is generally considered appropriate for waterbodies with drainage basins greater than one mile$^2$, if natural pools are greater than 40 cm, or if the water feature is shown as blue-line waterways on USGS 7.5-minute topographic quadrangle maps. In order to convey general stream habitat quality to the regulated public, the OEPA has assigned narrative ratings to QHEI scores. The ranges vary slightly for headwater streams (H are those with a watershed area less than or equal to 20 mile$^2$) versus larger streams (L are those with a watershed area greater than 20 mile$^2$). The Narrative Rating System includes: Very Poor (<30 H and L), Poor (30 to 42 H, 30 to 44 L), Fair (43 to 54 H, 45 to 59 L), Good (55 to 69 H, 60 to 74 L) and Excellent (70+ H, 75+ L).

### 2.2.2 OEPA PRIMARY HEADWATER HABITAT EVALUATION INDEX

Headwater streams are typically considered to be first-order and second-order streams, meaning streams that have no upstream tributaries (or “branches”) and those that have only first-order tributaries, respectively. The stream order concept can be problematic when used to define headwater streams because stream-order designations vary depending upon the accuracy and resolution of the stream delineation. Headwater streams are generally not shown on USGS 7.5-minute topographic quadrangles and are sometimes difficult to distinguish on aerial photographs. Nevertheless, headwater streams are now recognized as useful monitoring units due to their abundance, widespread spatial scale and landscape position (Fritz, et al. 2006). Impacts to headwater streams can have a cascading effect on the downstream water quality and habitat value. The headwater habitat evaluation index (HHEI) is a rapid field assessment
method for physical habitat that can be used to appraise the biological potential of most Primary Headwater Habitat (PHWH) streams. The HHEI was developed using many of the same techniques as used for QHEI, but has criteria specifically designed for headwater habitats. To use HHEI, the stream must have a “defined bed and bank, with either continuous or periodically flowing water, with watershed area less than or equal to 1.0 mile$^2$, and a maximum depth of water pools equal to or less than 15.75 inches” (OEPA, 2012).

Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessments result in a score (0 to 100) that is converted to a specific PHWH stream class. Streams that are scored from 0 to 29.9 are typically grouped into "Class 1 PHWH Streams", 30 to 69.9 are "Class 2 PHWH Streams", and 70 to 100 are "Class 3 PHWH Streams". Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the OEPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a decision-making flow chart can be used to determine appropriate PHWH stream class using the HHEI protocol (OEPA, 2012). Evidence of anthropogenic alterations to the natural channel will result in a “Modified” qualifier for the stream.

**Class 1 PHWH Streams:** Class 1 PHWH Streams are those that have “normally dry channels with little or no aquatic life present” (OEPA, 2012). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snowmelt or rainwater runoff.

**Class 2 PHWH Streams:** Class 2 PHWH Streams are equivalent to "warm-water habitat" streams. This stream class has a "moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis" (OEPA, 2012). These species communities are composed of vertebrates (fish and salamanders) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.

**Class 3 PHWH Streams:** Class 3 PHWH Streams usually have perennial water flow with cool-cold water adapted native fauna. The community of Class 3 PHWH Streams is comprised of vertebrates (either cold water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool water adapted macroinvertebrates present in the stream continuously (on an annual basis).

### 2.3 RARE, THREATENED AND ENDANGERED SPECIES

AECOM conducted a rare, threatened, and endangered species review and general field habitat surveys within areas within the Project survey area. The first phase of the review involved a review of online lists of federally and state-listed species. In addition to the review of available lists, AECOM submitted a request to Ohio Department of Natural Resources (ODNR) Office of Real Estate – Environmental Review Section soliciting comments on the Project. AECOM also submitted a coordination letter to the USFWS soliciting
technical assistance on the Project. Agency-identified species and available species-specific information was reviewed to identify the various habitat types that listed species are known to inhabit.

AECOM field ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys as part of the second phase of assessing rare, threatened, and endangered species. Land uses observed by the Project survey area were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys.

3.0 RESULTS

Within the Project survey area, AECOM delineated one wetland, five streams and no ponds. These features are discussed in detail in the following sections.

3.1 WETLAND DELINEATION

3.1.1 Preliminary Soils Evaluation

Soils in the delineated wetland were observed and documented as part of the delineation methodology. According to the USDA NRCS Web Soil Survey of Allen, Putnam, and Van Wert Counties, Ohio (USDA NRCS, 2017), and the USDA NRCS Hydric Soils Lists of Ohio, 14 soil series are mapped within the Project survey area (USDA NRCS 2017). Of these 214 soil series, six units are listed as hydric. Table 1 provides a detailed overview of all soil series and soil map units within the Project survey area. Soil map units located within the Project survey area are shown on Figure 2.

<table>
<thead>
<tr>
<th>Soil Series</th>
<th>Symbol</th>
<th>Topographic Setting</th>
<th>Hydric Component (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belmore</td>
<td>BIB</td>
<td>Outwash terraces, outwash plains</td>
<td>Not Hydric</td>
</tr>
<tr>
<td>Blount</td>
<td>Ble1A1</td>
<td>Blount silt loam, end moraine, 0 to 2 percent slopes</td>
<td>End moraines, till plains</td>
</tr>
<tr>
<td></td>
<td>Ble1B1</td>
<td>Blount silt loam, end moraine, 2 to 4 percent slopes</td>
<td>End moraines, till plains</td>
</tr>
<tr>
<td></td>
<td>Big1A1</td>
<td>Blount silt loam, ground moraine, 0 to 2 percent slopes</td>
<td>Ground moraines, till plains</td>
</tr>
<tr>
<td></td>
<td>BrA</td>
<td>Blount-Jenera complex, 0 to 3 percent slopes</td>
<td>Rises on ground moraines</td>
</tr>
<tr>
<td>Digby</td>
<td>DnA</td>
<td>Digby loam, 0 to 2 percent slopes</td>
<td>Outwash terraces, outwash plains</td>
</tr>
</tbody>
</table>
TABLE 1
SOIL MAP UNITS AND DESCRIPTIONS WITHIN THE EAST LIMA-MADDOX 345 KV TRANSMISSION LINE RE-CONDUCTORING PROJECT SURVEY AREA

<table>
<thead>
<tr>
<th>Soil Series</th>
<th>Symbol</th>
<th>Map Unit Description</th>
<th>Topographic Setting</th>
<th>Hydric</th>
<th>Hydric Component (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DnB</td>
<td>Glynwood</td>
<td>Glynwood silt loam, end moraine, 2 to 6 percent slopes</td>
<td>End moraines, till plains</td>
<td>Not Hydric</td>
<td>Pewamo (6)</td>
</tr>
<tr>
<td>HcA</td>
<td>Hoytville</td>
<td>Hoytville silty clay loam, 0 to 1 percent slopes</td>
<td>Wave-worked till plains</td>
<td>Hydric</td>
<td>Hoytville (90)</td>
</tr>
<tr>
<td>HtA</td>
<td>Hoytville</td>
<td>Hoytville silty clay, 0 to 1 percent slopes</td>
<td>Wave-worked till plains</td>
<td>Hydric</td>
<td>Hoytville (90)</td>
</tr>
<tr>
<td>HnA</td>
<td>Haskins</td>
<td>Haskins loam, 0 to 2 percent slopes</td>
<td>Depressions</td>
<td>Not Hydric</td>
<td>Mermill, Hoytville (3)</td>
</tr>
<tr>
<td>HpB</td>
<td>Houcktown</td>
<td>Houcktown sandy loam, 2 to 4 percent slopes</td>
<td>Depressions, ground moraines</td>
<td>Not Hydric</td>
<td>Alvada (5)</td>
</tr>
<tr>
<td>Me</td>
<td>Mermill</td>
<td>Mermill silty clay loam</td>
<td>Flats and drainages on lake plains</td>
<td>Hydric</td>
<td>Mermill (95)</td>
</tr>
<tr>
<td>NaA</td>
<td>Nappanee</td>
<td>Nappanee loam, 0 to 2 percent slopes</td>
<td>Lake plains</td>
<td>Not Hydric</td>
<td>Hoytville, Latty (5)</td>
</tr>
<tr>
<td>NpA</td>
<td>Nappanee</td>
<td>Nappanee silt loam, 0 to 2 percent slopes</td>
<td>Lake plains</td>
<td>Not Hydric</td>
<td>Hoytville, Latty (5)</td>
</tr>
<tr>
<td>NpB</td>
<td>Nappanee</td>
<td>Nappanee silt loam, 2 to 6 percent slopes</td>
<td>Lake plains</td>
<td>Not Hydric</td>
<td>Hoytville, Latty (5)</td>
</tr>
<tr>
<td>NiA</td>
<td>Nappanee</td>
<td>Nappanee silty clay loam, 0 to 2 percent slopes</td>
<td>Lake plains</td>
<td>Not Hydric</td>
<td>Hoytville, Latty (5)</td>
</tr>
<tr>
<td>NiB2</td>
<td>Nappanee</td>
<td>Nappanee silty clay loam, 2 to 6 percent slopes, moderately eroded</td>
<td>Lake plains</td>
<td>Not Hydric</td>
<td>Hoytville, Latty (1)</td>
</tr>
<tr>
<td>PmA</td>
<td>Pewamo</td>
<td>Pewamo silty clay loam, 0 to 1 percent slopes</td>
<td>Depressions, till plains</td>
<td>Hydric</td>
<td>Pewamo, Minster (91)</td>
</tr>
<tr>
<td>ScB</td>
<td>St. Clair</td>
<td>St. Clair silt loam, 2 to 6 percent slopes</td>
<td>Ground moraines, end moraines, lake plains</td>
<td>Not Hydric</td>
<td>NA</td>
</tr>
<tr>
<td>SIB</td>
<td>Shawtown</td>
<td>Shawtown loam, 2 to 6 percent slopes</td>
<td>Knolls on lake plains</td>
<td>Not Hydric</td>
<td>NA</td>
</tr>
<tr>
<td>SrA</td>
<td>Sloan</td>
<td>Sloan silty clay loam, till substratum, 0 to 1 percent slopes, frequently flooded</td>
<td>Backswamps and flats on flood plains</td>
<td>Hydric</td>
<td>Sloan (90)</td>
</tr>
<tr>
<td>Wh</td>
<td>Wabasha</td>
<td>Wabasha silty clay</td>
<td>Flood plains</td>
<td>Hydric</td>
<td>Wabasha (100)</td>
</tr>
</tbody>
</table>


3.1.2 National Wetland Inventory Map Review

National Wetland Inventory wetlands are areas of potential wetland that have been identified from USFWS aerial photograph interpretation which have typically not been field verified. Forested and heavy scrub/shrub wetlands are often not shown on NWI maps as foliage effectively hides the visual signature that indicates the presence of standing water and moist soils from an aerial view. Additionally, small wetlands are typically not identified on the NWI maps due to the scale of the aerial photography. The USFWS website states that the NWI maps are not intended or designed for jurisdictional wetland...
identification or location. As a result, NWI maps do not show all the wetlands found in a particular area nor do they necessarily provide accurate wetland boundaries. NWI maps are useful for providing indications of potential wetland areas, which are often supported by soil mapping and hydrologic predictions, based upon topographical analysis using USGS topographic maps.

According to the NWI maps of the Scott, Wetsel, Ottoville, Delphos, Elida, and Cairo, Ohio quadrangles, the Project survey area contains five mapped NWI wetlands. The NWI wetlands were identified as follows: five riverine, intermittent, stream bed, seasonally flooded wetlands (R4SBC). The location of the NWI mapped wetlands are shown on Figure 2.

### 3.1.3 Delineated Wetlands

During the field survey, AECOM identified one PEM wetland, approximately 0.006 acre (268 square feet) in area within the Project survey area, along the proposed access to Structure 01. The wetland boundaries extend beyond the Project survey corridor, but only what was identified within the Project survey area was assessed.

The location and approximate extent of the wetland identified within the Project survey area is shown on Figure 3A. Completed USACE and ORAM wetland delineation forms are provided in Appendix A and B, respectively. Color photographs taken of the wetlands are provided in Appendix D.

<table>
<thead>
<tr>
<th>Wetland Name</th>
<th>Project Component</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Cowardin Wetland Type(^a)</th>
<th>ORAM Score</th>
<th>ORAM Category</th>
<th>Acreage within Project Survey Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland 01</td>
<td>Access Road</td>
<td>40.802090</td>
<td>-84.029804</td>
<td>PEM</td>
<td>18</td>
<td>Category 1</td>
<td>0.006</td>
</tr>
<tr>
<td><strong>Totals:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.006</strong></td>
</tr>
</tbody>
</table>

\(^a\)Cowardin Wetland Type: PEM = palustrine emergent

### 3.1.4 Delineated Wetlands ORAM V5.0 Results

Wetland 01 is a Category 1 wetland. No Category 2 or Category 3 wetlands were observed during the field surveys. A summary of the delineated wetland can be found in Table 2 and Table 3. The completed ORAM form is provided in Appendix B

**Category 1 Wetlands**
The Category 1 wetland delineated within the Project survey area (Wetland 01) consisted of a PEM wetland that received a score of 18. This wetland exhibited medium upland buffers and a range of moderately high (residential) to high intensive surrounding land use (agricultural and industrial). The wetland also exhibited poor to fair plant community development with a sparse percentage of invasive species, with habitat and hydrology recovering from previous manipulation due to clear cutting, selective cutting, toxic pollutants, shrub/sapling removal, sedimentation, and farming.

<table>
<thead>
<tr>
<th>Cowardin Wetland Type&lt;sup&gt;a&lt;/sup&gt;</th>
<th>ORAM Category 1</th>
<th>ORAM Category 2</th>
<th>ORAM Category 3</th>
<th>Number of Wetlands</th>
<th>Acreage within Project Survey Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEM</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.006</td>
</tr>
<tr>
<td>Totals:</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.006</td>
</tr>
</tbody>
</table>

<sup>a</sup>Cowardin Wetland Type: PEM = palustrine emergent

### 3.2 STREAM CROSSINGS

AECOM identified four ephemeral streams, totaling 232 linear feet, along the proposed access roads within the Project survey area, as listed in Table 4. The locations of the streams identified within the survey Area are shown on Figures 3K, 3Q, 3R, 3T, and 3V.

HHEI evaluations conducted on all four ephemeral streams determined them to be Modified Class 1 streams. No Class 2 or Class 3 streams were identified within the Project survey area. These streams were identified using USGS topographic maps, aerial photography, and field reconnaissance.

AECOM has preliminarily determined that all assessed streams within the Project survey area appear to be jurisdictional (i.e., waters of the U.S.), as they all appear to be tributaries that flow into or combine with other streams (waters of the U.S).
# TABLE 4
STREMS IDENTIFIED IN THE EAST LIMA-MADDOX 345 KV RE-CONDUCTORING PROJECT SURVEY AREA

<table>
<thead>
<tr>
<th>Stream Report Name</th>
<th>Project Component</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Flow Regime</th>
<th>Average Bankfull Width (feet)</th>
<th>Maximum Pool Depth (in)</th>
<th>Form*</th>
<th>Score</th>
<th>Class/ Narrative Rating</th>
<th>Length (feet) within Project Survey Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stream 01</td>
<td>Access Road</td>
<td>40.876020</td>
<td>-84.282083</td>
<td>Ephemeral</td>
<td>0.5</td>
<td>0.5</td>
<td>HHEI</td>
<td>18</td>
<td>Modified Class 1</td>
<td>91</td>
</tr>
<tr>
<td>Stream 02</td>
<td>Access Road</td>
<td>40.910592</td>
<td>-84.379517</td>
<td>Ephemeral</td>
<td>0.5</td>
<td>0.5</td>
<td>HHEI</td>
<td>19</td>
<td>Modified Class 1</td>
<td>26</td>
</tr>
<tr>
<td>Stream 03</td>
<td>Access Road</td>
<td>40.923241</td>
<td>-84.408115</td>
<td>Ephemeral</td>
<td>1</td>
<td>0.5</td>
<td>HHEI</td>
<td>19</td>
<td>Modified Class 1</td>
<td>50</td>
</tr>
<tr>
<td>Stream 04</td>
<td>Access Road</td>
<td>40.927688</td>
<td>-84.436729</td>
<td>Ephemeral</td>
<td>1</td>
<td>0.5</td>
<td>HHEI</td>
<td>18</td>
<td>Modified Class 1</td>
<td>65</td>
</tr>
<tr>
<td><strong>Totals:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>232</strong></td>
</tr>
</tbody>
</table>

* Form Used: HHEI = Headwater Habitat Evaluation Index
3.2.1 Primary Headwater Habitat Evaluation Index

A total of four headwater streams, totaling 232 linear feet, were identified along the Project survey area. All four watercourses were identified as Modified Class 1 streams. Completed HHEI forms for each stream are provided in Appendix C. Color photographs of each stream are provided in Appendix D.

**Modified Class 1 Headwater Streams** – Four Modified Class 1 headwater streams, totaling 232 linear feet, with scores ranging from 18 to 19, were identified during the field investigations. All four of the streams were identified as ephemeral. The substrates of the streams generally consisted of leaf pack and woody debris, with lesser amounts of silt. The streams showed evidence of stream channel modification (e.g., channelization, vehicle crossings, culverting, etc.) that resulted in all three streams receiving a Modified designation. The maximum pool depth recorded for all streams was one-half inch and the average bankfull width ranged from 6 inches to one foot.

3.3 PONDS

During the field survey, AECOM delineated no ponds within the Project survey area.

3.4 VEGETATIVE COMMUNITIES WITHIN THE PROJECT SURVEY AREA

AECOM field ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys in September 2019. Portions of the Project survey area were identified as agricultural land, old field areas, landscaped areas, roadside stream and wetland areas, and urban areas. Habitat descriptions applicable to the Project and details on the expected impacts of construction are provided below. Vegetated land cover can be seen visually from aerial imagery provided on Figure 4.

<table>
<thead>
<tr>
<th>Vegetative Community</th>
<th>Description</th>
<th>Approximate Acreage Within the Project Survey Area</th>
<th>Approximate Percentage within the Project Survey Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Land</td>
<td>Agricultural land consisting of soybean and corn fields was present in much of the Project survey area. Some of this land had been recently tilled with no crops planted. The agricultural land contains row crops and is not used for pasture or hay fields.</td>
<td>31.1</td>
<td>82%</td>
</tr>
</tbody>
</table>

TABLE 5
VEGETATIVE COMMUNITIES WITHIN THE EAST LIMA-MADDOX 345 KV RECONDUCTORING PROJECT SURVEY AREA
### TABLE 5
VEGETATIVE COMMUNITIES WITHIN THE EAST LIMA-MADDOX 345 KV RECONDUCTORING PROJECT SURVEY AREA

<table>
<thead>
<tr>
<th>Vegetative Community</th>
<th>Description</th>
<th>Approximate Acreage Within the Project Survey Area</th>
<th>Approximate Percentage within the Project Survey Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Field</td>
<td>Herbaceous cover exists alongside roads, field borders, and abandoned fields within the Project survey area in the form of successional old-field communities. These communities are the earliest stages of recolonization by plants following disturbance. This community type is typically short-lived, giving way progressively to shrub and forest communities unless periodically re-disturbed, in which case they remain as old fields. The old-field areas within the study areas and adjacent areas are infrequently mowed areas of grasses, forbs, and occasional shrubs.</td>
<td>1.65</td>
<td>4%</td>
</tr>
<tr>
<td>Landscaped Area</td>
<td>Landscaped areas, including residential properties and commercial properties, were observed within the Project study area. These areas are maintained grass and/or herbaceous cover and were devoid of significant woody vegetation.</td>
<td>0.5</td>
<td>1%</td>
</tr>
<tr>
<td>Streams/Wetlands</td>
<td>Wetlands and roadside streams were observed both within and beyond the Project survey area.</td>
<td>0.1</td>
<td>1%</td>
</tr>
<tr>
<td>Urban</td>
<td>Urban areas observed within the Project study area contained paved, impervious roadways that were generally devoid of significant woody or herbaceous vegetation.</td>
<td>4.6</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Totals:</strong></td>
<td></td>
<td><strong>38</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### 3.5 RARE, THREATENED AND ENDANGERED SPECIES AGENCY COORDINATION

**Protected Species Agency Consultation** –

AECOM conducted a rare, threatened, and endangered species review for areas within the Project survey area. A summary of the agency coordination is provided below. Correspondence letters from the USFWS and ODNR are included as Appendix E. Table 6 provides a list of these species of concern identified in the Project area during the rare, threatened, and endangered species review.
### TABLE 6
ODNR AND USFWS LISTED SPECIES WITHIN THE EAST LIMA-MADDOX 345 KV RECONDUCTORIZING PROJECT SURVEY AREA

<table>
<thead>
<tr>
<th>Common Name (Scientific Name)</th>
<th>State Status</th>
<th>Federal Status</th>
<th>Habitat Description</th>
<th>Potential Habitat Observed in the Project Survey Area</th>
<th>Impact Assessment</th>
<th>Agency Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indiana Bat</strong> (Myotis sodalis)</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Winter Indiana bat hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory (Carya spp.), oak (Quercus spp.), ash (Fraxinus spp.), birch (Betula spp.), and elm (Ulmus spp.) have been found to be utilized by the Indiana bat. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low-density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey.</td>
<td>No</td>
<td>No tree clearing is planned as part of the Project. No impacts to the Indiana bat are anticipated.</td>
<td>USFWS commented that if no caves or abandoned mines are present and trees &gt;3 inches dbh cannot be avoided, USFWS recommends that any cutting of trees ≥3 inches DBH occur between October 1 and March 31. ODNR similarly requested that suitable Indiana bat habitat should be conserved or cut between October 1 and March 31.</td>
</tr>
<tr>
<td><strong>Northern Long-eared Bat</strong> (Myotis septentrionalis)</td>
<td>Threatened</td>
<td>Threatened</td>
<td>Winter hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory (Carya spp.), oak (Quercus spp.), ash (Fraxinus spp.), birch (Betula spp.), and elm (Ulmus spp.) have been found to be utilized by northern long-eared bats. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low-density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey. Northern long-eared bats have also been found, albeit rarely, roosting in structures like barns and sheds.</td>
<td>No</td>
<td>No tree clearing is planned as part of the Project. No impacts to the Northern long-eared bat are anticipated.</td>
<td>USFWS commented that if no caves or abandoned mines are present and trees &gt;3 inches dbh cannot be avoided, USFWS recommends that any cutting of trees ≥3 inches DBH occur between October 1 and March 31. ODNR did not comment on this species.</td>
</tr>
<tr>
<td><strong>Mussels</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 6
**ODNR AND USFWS LISTED SPECIES WITHIN THE EAST LIMA-MADDOX 345 KV RECONDUCTOR PROJECT SURVEY AREA**

<table>
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<tr>
<th>Common Name (Scientific Name)</th>
<th>State Status</th>
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<th>Impact Assessment</th>
<th>Agency Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Riffleshell (Epioblasma torulosa rangiana)</td>
<td>Endangered</td>
<td>Endangered</td>
<td>This mussel species prefers packed sand and gravel substrates in swift current riffles and runs.</td>
<td>No</td>
<td>No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.</td>
<td>The ODNR-DOW indicated that if in-water work is planned, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. The DOW stated if no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.</td>
</tr>
<tr>
<td>Clubshell (Pleurobema clava)</td>
<td>Endangered</td>
<td>Endangered</td>
<td>This mussel species prefers clean, loose sand and gravel in medium to small rivers.</td>
<td>No</td>
<td>No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.</td>
<td>The ODNR-DOW indicated that if in-water work is planned, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. The DOW stated if no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.</td>
</tr>
<tr>
<td>Rayed Bean (Villosa fabalis)</td>
<td>Endangered</td>
<td>Endangered</td>
<td>This mussel species prefers gravel or sand substrates and is often found in and around roots of aquatic vegetation in smaller, headwater creeks.</td>
<td>No</td>
<td>No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.</td>
<td>The ODNR-DOW indicated that if in-water work is planned, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. The DOW stated if no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.</td>
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<td>Common Name (Scientific Name)</td>
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</tr>
<tr>
<td>White Catspaw (\text{Epioblasma obliquata perobliqua})</td>
<td>Endangered</td>
<td>Endangered</td>
<td>This mussel species prefers coarse and stable substrates, consisting of gravel and pebble, in riffles and runs of high-gradient headwater streams, small to medium in size.</td>
<td>No</td>
<td>No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.</td>
<td>The ODNR-DOW indicated that if in-water work is planned, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. The DOW stated if no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.</td>
</tr>
<tr>
<td>Wartyback (\text{Quadrula nodulata})</td>
<td>Endangered</td>
<td>None</td>
<td>This mussel species prefers medium to large rivers and reservoirs with a mud, sand, or gravel bottom.</td>
<td>No</td>
<td>No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.</td>
<td>The ODNR indicated that this project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. If in-water work is planned, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area.</td>
</tr>
<tr>
<td>Common Name (Scientific Name)</td>
<td>State Status</td>
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<td>---------------------</td>
<td>-----------------------------------------------------</td>
<td>-------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Purple Lilliput (<em>Toxolasma lividus</em>)</td>
<td>Endangered</td>
<td>None</td>
<td>This mussel species most often occurs in small to medium streams with well packed sand or gravel substrate, in depths less than 1 meter</td>
<td>No</td>
<td>No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.</td>
<td>The ODNR-DOW indicated that if in-water work is planned, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. The DOW stated if no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.</td>
</tr>
<tr>
<td>Rabbitsfoot (<em>Quadrula cylindrica cylindrica</em>)</td>
<td>Endangered</td>
<td>None</td>
<td>This mussel species most often occurs in small to medium sized streams and some larger rivers, with gravel and sand substrates. The mussel usually occurs in shallower water areas along the bank and adjacent runs and shoals with reduced water velocity, but some specimens have been recorded in up to 2.7 to 3.7 meters of water.</td>
<td>No</td>
<td>No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.</td>
<td>The ODNR-DOW indicated that if in-water work is planned, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. The DOW stated if no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.</td>
</tr>
<tr>
<td>Pondhorn (<em>Uniomerus tetralasmus</em>)</td>
<td>Threatened</td>
<td>None</td>
<td>This mussel species occurs in standing water in ponds, creeks, and headwaters of streams with mud and sand bottoms.</td>
<td>No</td>
<td>No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.</td>
<td>The ODNR-DOW indicated that if in-water work is planned, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. The DOW stated if no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.</td>
</tr>
</tbody>
</table>

Fish
### TABLE 6
ODNR AND USFWS LISTED SPECIES WITHIN THE EAST LIMA-MADDOX 345 kV RECONDUCTOR PROJECT SURVEY AREA

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pugnose Minnow <em>(Opsopoeodus emiliae)</em></td>
<td>Endangered</td>
<td>None</td>
<td>This fish prefers sluggish rivers with lots of woody debris with moderately turbidity and aquatic vegetation, where the bottom is composed of organic debris or sand. The fish are often found in oxbows or floodplain pools of slow meandering rivers, but also occur in natural lakes along with harbors and coastal marshes of Lake Erie.</td>
<td>No</td>
<td>No suitable habitat is located within the Project survey area.</td>
<td>The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.</td>
</tr>
<tr>
<td>Greater Redhorse <em>(Moxostoma valenciennesi)</em></td>
<td>Threatened</td>
<td>None</td>
<td>This fish is found in medium to large rivers in the Lake Erie drainage system of Ohio, only found in limited portions of the Sandusky, Maumee, and Grand River systems. The fish are most often found in pools with clean sand or gravel substrate and clear water, as they are intolerant of pollution and turbidity.</td>
<td>No</td>
<td>No suitable habitat is located within the Project survey area.</td>
<td>The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.</td>
</tr>
<tr>
<td>Birds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The DOW recommends if suitable habitat will be impacted, construction should be avoided in this habitat during the species’ nesting period of April 15 to July 31. If this habitat will not be impacted, this project is not likely to impact this species.</td>
</tr>
<tr>
<td>Upland Sandpiper <em>(Bartramia longicauda)</em></td>
<td>Endangered</td>
<td>None</td>
<td>This species utilizes dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and sometimes the grassy extensions of airports.</td>
<td>No</td>
<td>No suitable habitat was observed within the Project survey area</td>
<td>The DOW recommends if suitable habitat will be impacted, construction should be avoided in this habitat during the species’ nesting period of April 15 to July 31. If this habitat will not be impacted, this project is not likely to impact this species.</td>
</tr>
</tbody>
</table>
### TABLE 6
ODNR AND USFWS LISTED SPECIES WITHIN THE EAST LIMA-MADDOX 345 KV RECONDUCTOR PROJECT SURVEY AREA

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<th>Agency Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Harrier (<em>Circus cyaneus</em>)</td>
<td>Endangered</td>
<td>None</td>
<td>This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds nests out of sticks on the ground, often on top of a mound. This species hunts over grasslands.</td>
<td>No</td>
<td>No suitable habitat was observed within the Project survey area.</td>
<td>The DOW recommends if suitable habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.</td>
</tr>
<tr>
<td>Bald eagle (<em>Haliaeetus leucocephalus</em>)</td>
<td>None</td>
<td>Recovered</td>
<td>Bald eagles require a good food base, perching areas, and nesting sites. Their habitat includes estuaries, large lakes, reservoirs, rivers, and some seacoasts. In winter, the birds congregate near open water in tall trees for spotting prey and night roosts for sheltering.</td>
<td>No</td>
<td>No potentially suitable habitat was observed within the Project area.</td>
<td>ODNR indicated that there are Natural Heritage Database records of bald eagles within a one-mile radius of the project area. USFWS did not comment on this species.</td>
</tr>
</tbody>
</table>
ODNR Coordination –

On April 19, 2019, the ODNR Office of Real Estate Environmental Review Section provided comments on the Project based on an inter-disciplinary review. The Ohio Natural Heritage Database (ONHD), Division of Wildlife (DOW), and the Division of Water Resources (DWR) provided comments regarding their respective regulatory authorities.

ONHD indicated that records of four state species of concern (Purple wartyback (*Cyclonaias tuberculata*), Wavy-rayed lampmussel (*Lampsilis fasciola*), Creek heelsplitter (*Lasmigona compressa*), and Deertoe (*Truncilla truncata*)), two state endangered species (Clubshell (*Pleurobema clava*) and Purple lilliput (*Toxolasma lividus*)), one state threatened species (Greater redhorse (*Moxostoma valenciennesi*)), and one federal species of concern (Bald eagle (*Haliaeetus leucocephalus*)) were found within a one-mile radius of the Project survey area.

The DOW noted that the Project is within the range of the Indiana bat, a state endangered species and federally endangered species. If suitable habitat occurs within the Project area and the trees must be cut, the DOW recommends cutting occur between October 1 to March 31. If no tree removal is proposed, this project is not likely to impact this species.

The DOW noted that the Project is within the range of several state endangered and threatened aquatic species; including eight mussel species and two fish species. The DOW stated that this project must not have an impact on freshwater native mussel species at the project site. The DOW stated that if no in-water work is proposed within perennial streams, this project is not likely to impact the mussels, fish or other aquatic species.

The DOW noted that the Project is within the range of the upland sandpiper and the northern harrier, which are state endangered birds. ODNR indicated that construction should be avoided during the upland sandpiper’s nesting period (April 15 to July 31) to avoid impacts to grasslands, pasture, and hayfield habitats, and construction should be avoided during the northern harrier’s nesting period (May 15 to August 1) to avoid impacts to grasslands and marshes. ODNR-DOW has also indicated that the potential habitat ground cover types smaller than one acre in size and commercial or residential landscaped areas do not constitute adequate nesting habitat for these two species. Landscaped areas are frequently mechanically maintained and, therefore, do not provide suitable grassland habitat for nesting. These areas within the Project survey area were observed to be disturbed and devoid of grasses or maintained such that grasses were too short to provide nesting habitat. Based on general observations during the ecological survey, no suitable nesting habitat was observed within the Project survey area for the upland sandpiper nor the northern harrier.

USFWS Coordination –
Coordination with the USFWS was initiated during the planning stages of the Project to obtain technical assistance in regard to federally listed species that may occur within the project vicinity. In a letter dated March 18, 2019, the USFWS indicated that there are no Federal wildlife refuges, wilderness areas, or critical habitat within the vicinity of the Project.

The USFWS noted that the Project lies within the range of the federally endangered Indiana bat, and the federally threatened Northern long-eared bat. USFWS recommends that should the proposed site contain trees ≥3 inches dbh, that trees be saved wherever possible. If tree clearing cannot be avoided, USFWS recommends that tree removal occur between October 1 and March 31 to avoid adverse effects to Indiana bats and Northern long-eared bats during the brood-rearing months. No tree clearing is planned as part of the Project.

4.0 SUMMARY

The ecological survey of the Project survey area identified a total of four ephemeral, Modified Class 1 streams and one palustrine emergent, Category 1 wetland.

No ponds were delineated within the Project survey corridor.

With regard to state and/or federally-listed threatened and endangered species that may occur within the Project vicinity, 14 species of concern with ranges located within the Project survey area were listed by the ODNR-DOW or USFWS, include the following: Indiana bat, Northern long-eared bat, northern riffleshell, white cat’s paw, clubshell, rabbitsfoot, rayed bean, purple lilliput, wartyback, pondhorn, pugnose minnow, greater redhorse upland sandpiper, and northern harrier. No in-stream work and no tree clearing are anticipated as part of the Project.

Based on general observations during the ecology survey, the Project survey area does not contain successional woodland habitat which could be potential summer habitat for the Indiana bat and the Northern long-eared bat. No tree is clearing is planned as part of the Project.

ODNR indicated that if no in-water work is proposed within perennial streams, this project is not likely to impact mussels, fish or other aquatic species. No in-stream work is proposed as part of the Project.

ODNR indicated that construction should be avoided during the upland sandpiper’s nesting period between April 15 to July 31 to avoid impacts to grasslands, pasture, and hayfield. Based on general observations during the ecology survey, no upland sandpiper nesting habitat is expected to be impacted as a result of the Project.
ODNR indicated that construction should be avoided during the Northern harrier’s nesting period between May 15 to August 1 to avoid impacts to marshes and grasslands. Based on general observations during the ecology survey, no Northern harrier nesting habitat is expected to be impacted as a result of the Project.

The reported results of the ecological survey conducted by AECOM on this Project are limited to the areas within the Project survey boundary provided in Figure 3: Wetland Delineation and Stream Assessment Map. Areas that fall outside of the Project survey boundary were not evaluated in the field and are not included in the reporting of this survey.

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which AECOM is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of AECOM. Final jurisdictional determination of WOTUS can only be verified by the USACE.
REFERENCES


Rankin, Edward T. 2006. *Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI).* Ohio EPA Ecological Assessment Section, Division of Surface Water, Columbus, Ohio.


FIGURE 1
OVERVIEW MAP

JOB NO. 60601386

LEGEND:
△ Station
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- USGS 7.5" Topographical Quadrangle
- County
- USACE Wetland Region

Base Map:

Ohio Transmission Company
345 kV Transmission Line Project
FIGURE 2D
SOIL MAP UNIT AND
NATIONAL WETLAND INVENTORY MAP

Job NO. 60601386

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access
- Existing Structure
- Soil Map Unit

Soil Map Unit Symbol:
Blg1A1, Blount silt loam, ground moraine, 0 to 2 percent slopes

FIGURE 2E
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

Job NO. 60601386

Base Map: http://www.arcgis.com/home/webmap/viewer.html
FIGURE 2F
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access
- Existing Structure
- Soil Map Unit

Soil Map Unit Symbol:
- Blg1A1, Blount silt loam, ground moraine, 0 to 2 percent slopes
- HpB, Houcktown loam, 2 to 4 percent slopes
- PmA, Pewamo silty clay loam, 0 to 1 percent slopes

FIGURE 2G
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60601386

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- Ohio River
- County
- USACE Wetland Region
- Pull Pad
- Snub Site
- Work Pad
- Proposed Access
- Existing Structure
- NHD Stream
- NWI Wetland
- Soil Map Unit

Soil Map Unit Symbol:
- HcA, Hoytville silt loam, 0 to 1 percent slopes
- SfB, Shawtown loam, 2 to 6 percent slopes

FIGURE 2H
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

FIGURE 2I
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP
JOB NO. 60601386
FIGURE 2L
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP
JOB NO. 60601386

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access
- Existing Structure
- NHD Stream
- NWI Wetland
- 100-yr Floodplain
- Soil Map Unit

Soil Map Unit Symbol:
- HcA, Hoytville silty clay loam, 0 to 1 percent slopes
- NpA, Nappanee silt loam, 0 to 2 percent slopes

FIGURE 2O
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access Road
- Existing Structure
- NHD Stream
- NWI Wetland
- Soil Map Unit

Soil Map Unit Symbol:
- HtA, Hoytville silty clay, 0 to 1 percent slopes

FIGURE 2P
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60601386
Figure 2R
SOIL MAP UNIT AND
NATIONAL WETLAND INVENTORY MAP

Van Wert County

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access
  - Existing Structure
  - NHD Stream
  - NWI Wetland
  - Soil Map Unit

Soil Map Unit Symbol
HtA, Hoytville silty clay, 0 to 1 percent slopes

FIGURE 2S
SOIL MAP UNIT AND
NATIONAL WETLAND INVENTORY MAP
JOB NO. 60601386
FIGURE 2T
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP
JOB NO. 60601386
FIGURE 2V
SOIL MAP UNIT AND
NATIONAL WETLAND INVENTORY MAP

JOB NO. 60601386
FIGURE 2W
SOIL MAP UNIT AND
NATIONAL WETLAND INVENTORY MAP
JOB NO. 60601386

LEGEND:
- Station
- Project Survey Corridor
- County
- USACE Wetland Region
- Proposed Access
- NWI Wetland
- Soil Map Unit

Soil Map Unit Symbol
- HnA, Haskins loam, 0 to 2 percent slopes
- HtA, Hoytville silty clay, 0 to 1 percent slopes
- NtA, Nappanee silty clay loam, 0 to 2 percent slopes

FIGURE 2X
SOIL MAP UNIT AND
NATIONAL WETLAND INVENTORY MAP

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access Road
- Existing Structure
- NWI Wetland
- Soil Map Unit

Soil Map Unit Symbol:
- HnA, Haskins loam, 0 to 2 percent slopes
- HtA, Hoytville silty clay, 0 to 1 percent slopes
- NtA, Nappanee silty clay loam, 0 to 2 percent slopes

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Allen County
Midwest

Wetland 01
Category 1

Upland 01

Upland 02

Wetland 01
Category 1

Midwest

Allen County

LEGEND:
- Station
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Proposed Structure
- Existing Structure
- Helipad
- Pull Pad
- Work Pad
- Proposed Access Road
- Upland Data Point
- Wetland Data Point
- Delineated Wetland
- Approximate Wetland Location

FIGURE 3A
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60601386
FIGURE 3B
WETLAND DELINEATION
AND STREAM ASSESSMENT MAP

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Existing Structure
- Helipad
- Proposed Access Road

FIGURE 3E
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60601386
FIGURE 3H
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

Allen County
Putnam County
Northcentral and Northeast
Midwest

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Existing Structure
- Helipad
- Proposed Access Road
- 100-yr Floodplain


East Lima-Maddox 345 kV Transmission Line Project
JOB NO. 60601386
FIGURE 3J
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

Job No. 60601386
FIGURE 3N
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60601386
FIGURE 3P
WETLAND DELINEATION AND STREAM ASSESSMENT MAP
JOB NO. 60601386

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Existing Structure
- Helipad
- Proposed Access Road
- 100-yr Floodplain

Base Map: http://www.arcgis.com/home/gallery.html
FIGURE 3Q
WETLAND DELINEATION
AND STREAM ASSESSMENT MAP
JOB NO. 60601386
LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Existing Structure
- Helipad
- Proposed Access Road
- Culvert
- Delineated Ephemeral Stream
- Approximate Stream Location

FIGURE 3R
WETLAND DELINEATION AND STREAM ASSESSMENT MAP
JOB NO. 60601386

FIGURE 3U
WETLAND DELINEATION
AND STREAM ASSESSMENT MAP

East Lima-Maddox
345 kV Transmission Line Project

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Existing Structure
- Helipad
- Proposed Access Road


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FIGURE 3V
WETLAND DELINEATION
AND STREAM ASSESSMENT MAP

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Existing Structure
- Helipad
- Proposed Access Road

FIGURE 3W

WETLAND DELINEATION
AND STREAM ASSESSMENT MAP

JOB NO. 60601386

LEGEND:
- Station
- Project Survey Corridor
- County
- USACE Wetland Region
- Proposed Access Road

Van Wert County
Northcentral and Northeast
Maddox Station

Base Map: http://www.arcgis.com/home/item.html?id=60601386

345 kV Transmission Line Project
LEGEND:

- Station
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Existing Structure
- Helipad
- Proposed Access Road

FIGURE 3X
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60601386

Allen County
Midwest

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access Road
- Existing Structure
- Agricultural Land
- Urban

FIGURE 4B
VEGETATION COMMUNITIES ASSESSMENT MAP

G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60601386_AEP_ELMadd\GIS\East Lima-Maddox_WDR_Figure4.mxd  Date: 9/17/2019

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access Road
- Existing Structure
- Agricultural Land
- Urban

FIGURE 4F
VEGETATION COMMUNITIES ASSESSMENT MAP

G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60601386_AEP_ELMadd\GIS\East Lima-Maddox_WDR_Figure4.mxd  Date: 9/17/2019
FIGURE 4H
VEGETATION COMMUNITIES
ASSESSMENT MAP

JOB NO. 60601386
FIGURE 4J
VEGETATION COMMUNITIES
ASSESSMENT MAP
FIGURE 4N
VEGETATION COMMUNITIES
ASSESSMENT MAP

JOB NO. 60601386
FIGURE 4P
VEGETATION COMMUNITIES
ASSESSMENT MAP

JOB NO. 60601386

LEGEND:
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access
- Existing Structure
- 100-yr Floodplain
- Agricultural Land
- Urban

FIGURE 4R
VEGETATION COMMUNITIES
ASSESSMENT MAP

JOB NO. 60601386
FIGURE 4S
VEGETATION COMMUNITIES
ASSESSMENT MAP

FIGURE 4U

VEGETATION COMMUNITIES ASSESSMENT MAP

LEGEND:
- Station
- Project Survey Corridor
- County
- USACE Wetland Region
- Proposed Access Road
- Urban

FIGURE 4W
VEGETATION COMMUNITIES ASSESSMENT MAP

JOB NO. 60601386
LEGEND:

- Station
- Project Survey Corridor
- East Lima-Maddox 345 kV Transmission Line
- County
- USACE Wetland Region
- Helipad
- Proposed Access Road
- Existing Structure
- Agricultural Land
- Urban

FIGURE 4X
VEGETATION COMMUNITIES
ASSESSMENT MAP

JOB NO. 60601386
APPENDIX A

U.S. ARMY CORPS of ENGINEERS WETLAND AND UPLAND FORMS
### Wetland Determination Data Form - Midwest Region

**Project/Site:** East Lima to Maddox  
**City/County:**  
**Applicant/Owner:** AEP  
**State:** OH  
**Sampling Date:** 04-Sep-19  
**Sampling Point:** w-aeH-20190904-01  

**Investigator(s):** AEH, SM  
**Section, Township, Range:** 11T 3S 7E  
**Landform (hillslope, terrace, etc.):** Swale  
**Local relief (concave, convex, none):** none  
**Slope:** 0.0%  
**Lat.:** 40.803361  
**Long.:** -84.029292  
**Datum:** NAD 83  
**Soil Map Unit Name:** Glywood silt loam, end moraine, 2 to 6 percent slopes (Gwe1B1)  
**WNI classification:** N/A  
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ☐ ☐ ☐ No ☐ ☐ ☐  
**Remarks:** (If no, explain in Remarks.)  

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

- **Hydrophytic Vegetation Present?** Yes ☐ ☐ ☐ No ☐ ☐ ☐  
- **Hydric Soil Present?** Yes ☐ ☐ ☐ No ☐ ☐ ☐  
- **Wetland Hydrology Present?** Yes ☐ ☐ ☐ No ☐ ☐ ☐  
- **Is the Sampled Area within a Wetland?** Yes ☐ ☐ ☐ No ☐ ☐ ☐  
- **Remarks:**

### Vegetation - Use scientific names of plants.

#### Tree Stratum

<table>
<thead>
<tr>
<th>Tree Species</th>
<th>Plot Size:</th>
<th>Absolute Cover</th>
<th>Dominant Species?</th>
<th>Indicator</th>
<th>Gradient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>0.0%</td>
<td></td>
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<tr>
<td>3.</td>
<td></td>
<td>0.0%</td>
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<tr>
<td>4.</td>
<td></td>
<td>0.0%</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sapling/Shrub Stratum

<table>
<thead>
<tr>
<th>Sapling/Shrub Species</th>
<th>Plot Size:</th>
<th>Absolute Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>0.0%</td>
</tr>
</tbody>
</table>

#### Herb Stratum

<table>
<thead>
<tr>
<th>Herb Stratum Species</th>
<th>Plot Size:</th>
<th>Absolute Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juncus effusus</td>
<td></td>
<td>23.8% OBL</td>
</tr>
<tr>
<td>Scirpus atrovires</td>
<td></td>
<td>19.0% OBL</td>
</tr>
<tr>
<td>Carex cristatella</td>
<td></td>
<td>19.0% FACW</td>
</tr>
<tr>
<td>Echinochloa crus-galli</td>
<td></td>
<td>14.3% FACW</td>
</tr>
<tr>
<td>Apocynum cannabinum</td>
<td></td>
<td>9.5% FACU</td>
</tr>
<tr>
<td>Dipsacus fullonum</td>
<td></td>
<td>9.5% FACU</td>
</tr>
<tr>
<td>Solidago canadensis</td>
<td></td>
<td>4.8% FACU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>0.0%</td>
</tr>
</tbody>
</table>

#### Woody Vine Stratum

<table>
<thead>
<tr>
<th>Woody Vine Species</th>
<th>Plot Size:</th>
<th>Absolute Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.0%</td>
</tr>
</tbody>
</table>

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

---

**Dominance Test Worksheet**

- Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
- Total Number of Dominant Species Across All Stratata: 3 (B)
- Percent of dominant Species That Are OBL, FACW, or FACU: 100.0% (A/B)

**Prevalence Index Worksheet**

- Total % Cover of: OBL species 45 x 1 = 45  
- FACW species 35 x 2 = 70  
- FAC species 10 x 3 = 30  
- FACU species 15 x 4 = 60  
- UPL species 0 x 5 = 0
- Column Totals: 105 (A) 205 (B)
- Prevalence Index = B/A = 1.952

**Hydrophytic Vegetation Indicator**

1. **Rapid Test for Hydrophytic Vegetation**
2. **Dominance Test is > 50**
3. **Prevalence Index is ≤3.**
4. **Morphological Adaptations** (Provide supporting data in Remarks or on a separate sheet)

**Problematic Hydrophytic Vegetation** (Exclude)

**Indicators of hydric soil and wetland hydrology must**

**Hydrophytic Vegetation Present?** Yes ☐ ☐ ☐ No ☐ ☐ ☐
## SOIL Sampling Point: w-aeh-20190904-01

### Profile Description:

(Describe to the depth needed to document the indicator or confirm the absence of indication)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix Color (moist)</th>
<th>Redox Features Color (moist)</th>
<th>% Type</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>10YR 5/1 90</td>
<td>10YR 5/6 10 C M</td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  
2 Location: PL=Pore Lining, M

### Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

Sandy Gleyed Matrix (S4)
Sandy Redox (S5)
Stripped Matrix (S6)
Loamy Mucky Mineral (F1)
Loamy Gleyed Matrix (F2)
Depleted Matrix (F3)
Redox Dark Surface (F6)
Depleted Dark Surface (F7)
Redox Depressions (F8)

### Restrictive Layer (if observed)

Type:  
Depth (inches):  

### Hydric Soil Present

- Yes  
- No

### Remarks:

### HYDROLOGY

#### Wetland Hydrology Indicator

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (minimum of two required)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

#### Field Observations:

- Surface Water Present? Yes  
- Water Table Present? Yes  
- Saturation Present? Includes capillary fringe  Yes  

Depth (inches):  

### Wetland Hydrology Present

- Yes  
- No

### Remarks:

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
**WETLAND DETERMINATION DATA FORM - Midwest Region**

**Project/Site**  East Lima to Maddox  
**City/County**  Allen  
**State**  OH  
**Sampling Date**  04-Sep-19  
**Applicant/Owner**  AEP  
**Investigator(s)**  AEH, SM  
**Landform**  Flat  
**Slope**  0.0% / 0.0°  
**Soil Map Unit Name**  Pewamo silt loam, 0 to 1 percent slopes (PmA)  
**Lat.**  40.802056  
**Long.**  -84.029791  
**Datum**  NAD 83  

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

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

**VEGETATION - Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Tree Stratum</th>
<th>Plot size:</th>
<th>Absolutes</th>
<th>Dominant Species</th>
<th>Indicator</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
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<td>0</td>
<td>0.0%</td>
<td></td>
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<tr>
<td>2.</td>
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<td>5.</td>
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<td>0</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum</th>
<th>Plot size:</th>
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<th>0.0%</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>0.0%</td>
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<td>2.</td>
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<td>4.</td>
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<tr>
<td>5.</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum</th>
<th>Plot size:</th>
<th>0</th>
<th>0.0%</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
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<tr>
<td>3.</td>
<td></td>
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<tr>
<td>4.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
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<tr>
<td>5.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum</th>
<th>Plot size:</th>
<th>115</th>
<th>0.0%</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>0.0%</td>
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<tr>
<td>2.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
</tbody>
</table>

**Prevalence Index worksheet**

- **Total % Cover of:**
  - OBL species 0 x 1 = 0
  - FACW species 5 x 2 = 10
  - FAC species 0 x 3 = 0
  - FACU species 100 x 4 = 400
  - UPL species 10 x 5 = 50

- **Column Totals:** 115 (A) 460 (B)

- **Prevalence Index = B/A** 4.00

**Hydrophytic Vegetation Indicator**

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is > 50
- 3 - Prevalence Index is ≤ 3.
- 4 - Morphological Adaptations 1 (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation 1 (Explain)

- Indicators of hydric soil and wetland hydrology must

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by*
### SOIL

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>10YR 5/1 90</td>
<td>10YR 5/4 10 C M</td>
<td>Silty Clay Loam</td>
</tr>
</tbody>
</table>

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M

**Hydric Soil Indicators:**
- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

**Indicators for Problematic Hydric Soils:**
- Coast Prairie Redox (A1)
- Dark Surface (S7)
- Iron Manganese Masses (F1)
- Very Shallow Dark Surface (TF1)
- Other (Explain in Remarks)

3 Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if observed)**

<table>
<thead>
<tr>
<th>Type:</th>
<th>Depth (inches):</th>
<th>Hydric Soil Present</th>
<th>Yes ☑ No ☐</th>
</tr>
</thead>
</table>

Remarks:

### HYDROLOGY

#### Wetland Hydrology Indicator

Primary Indicators (minimum of one is required; check all that apply):
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (minimum of two required):
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Presence of Reduced Iron (C4)
- Oxidized Rhizospheres on Living Roots (C3)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

#### Field Observations:

<table>
<thead>
<tr>
<th>Surface Water Present?</th>
<th>Yes ☑ No ☐</th>
<th>Depth (inches):</th>
<th>Wetland Hydrology Present</th>
<th>Yes ☑ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Table Present?</td>
<td>Yes ☑ No ☐</td>
<td>Depth (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturation Present?</td>
<td>Yes ☑ No ☐</td>
<td>Depth (inches):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
### WETLAND DETERMINATION DATA FORM - Midwest Region

**Project/Site:** East Lima to Maddox  
**City/County:**  
**Allen:**  
**State:** OH  
**Sampling Point:** upl-aeh-20190904-02  
**Sampling Date:** 04-Sep-19

**Applicant/Owner:** AEP  
**Investigator(s):** AEH, SM  
**Section, Township, Range:** 11 T 3S R 7E  
**Local relief (concave, convex, none): none**  
**Soil Map Unit Name:** Blount silt loam, end moraine, 2 to 4 percent slopes (Ble1B1)  
**NWI classification:** N/A  
**Datum:** NAD 83  
**Long.:** -84.029657  
**Lat.:** 40.802186

**Slope:** 0.0% / 0.0  
**Hydric Soil Present:** Yes  
**Hydrophytic Vegetation Present:** Yes  
**Hydrology Present:** Yes  
**Are Vegetation , Soil , or Hydrology significantly disturbed?** Yes  
**Are Vegetation , Soil , or Hydrology naturally problematic?** No  
**Local relief (concave, convex, none): none**

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

**Hydrophytic Vegetation Present?** Yes  
**Hydric Soil Present?** Yes  
**Wetland Hydrology Present?** Yes  
**Is the Sampled Area within a Wetland?** Yes

**Remarks:**

### VEGETATION - Use scientific names of plants.

**Tree Strata (Plot size: )**

<table>
<thead>
<tr>
<th>Number</th>
<th>Species</th>
<th>Absolutes</th>
<th>Dominant Species?</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td>Rel.Strat</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
</tbody>
</table>

**Sapling/Shrub Strata (Plot size: )**

<table>
<thead>
<tr>
<th>Number</th>
<th>Species</th>
<th>Absolutes</th>
<th>Dominant Species?</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dipssacus fullonum</td>
<td>25</td>
<td>23.8% Facu</td>
<td>FACU</td>
</tr>
<tr>
<td>2.</td>
<td>Solidago canadensis</td>
<td>20</td>
<td>19.0% Facu</td>
<td>FACU</td>
</tr>
<tr>
<td>3.</td>
<td>Setaria faberi</td>
<td>15</td>
<td>14.3% Facu</td>
<td>FACU</td>
</tr>
<tr>
<td>4.</td>
<td>Echinochloa crus-galli</td>
<td>15</td>
<td>14.3% Facu</td>
<td>FACU</td>
</tr>
<tr>
<td>5.</td>
<td>Dactylis glomerata</td>
<td>10</td>
<td>9.5% Facu</td>
<td>FACU</td>
</tr>
<tr>
<td>6.</td>
<td>Apocynum cannabinum</td>
<td>5</td>
<td>4.8% Fac</td>
<td>FACU</td>
</tr>
<tr>
<td>7.</td>
<td>Setaria pumila</td>
<td>5</td>
<td>4.8% Fac</td>
<td>FACU</td>
</tr>
<tr>
<td>8.</td>
<td>Cyclocloma atriculicfolium</td>
<td>5</td>
<td>4.8% Fac</td>
<td>FACU</td>
</tr>
<tr>
<td>9.</td>
<td>Mellilotus officinal</td>
<td>5</td>
<td>4.8% Fac</td>
<td>FACU</td>
</tr>
<tr>
<td>10.</td>
<td>Woody Vine Strata (Plot size: )</td>
<td>105</td>
<td>0.0% Fac</td>
<td>FACU</td>
</tr>
</tbody>
</table>

**Herb Strata (Plot size: )**

<table>
<thead>
<tr>
<th>Number</th>
<th>Species</th>
<th>Absolutes</th>
<th>Dominant Species?</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dipsacus fullonum</td>
<td>25</td>
<td>23.8% FACU</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Solidago canadensis</td>
<td>20</td>
<td>19.0% FACU</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Setaria faberi</td>
<td>15</td>
<td>14.3% FACU</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Echinochloa crus-galli</td>
<td>15</td>
<td>14.3% FACU</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Dactylis glomerata</td>
<td>10</td>
<td>9.5% FACU</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Apocynum cannabinum</td>
<td>5</td>
<td>4.8% FAC</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Setaria pumila</td>
<td>5</td>
<td>4.8% FAC</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Cyclocloma atriculicfolium</td>
<td>5</td>
<td>4.8% FAC</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Mellilotus officinal</td>
<td>5</td>
<td>4.8% FAC</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Woody Vine Strata (Plot size: )</td>
<td>105</td>
<td>0.0% FAC</td>
<td></td>
</tr>
</tbody>
</table>

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by*

---

**US Army Corps of Engineer**  
**Midwest Region - Version 2.0**
### SOIL

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>10YR</td>
<td>5/1</td>
<td>10YR</td>
<td>5/6</td>
<td>C</td>
<td>M</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
</tbody>
</table>

1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  
2 Location: PL=Pore Lining. M

#### Hydric Soil Indicators:
- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] 2 cm Muck (A10)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Muck Mineral (S1)
- [ ] 5 cm Mucky Peat or Peat (S3)
- [x] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [x] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

#### Restrictive Layer (if observed)
- **Type:**  

#### Remarks:

#### HYDROLOGY

### Wetland Hydrology Indicator

**Primary Indicators** (minimum of one is required; check all that apply)
- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)

**Secondary Indicators** (minimum of two required)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Gauge or Well Data (D9)
- [ ] Other (Explain in Remarks)

**Field Observations:**
- **Surface Water Present?** Yes ☑ No ☐ Depth (inches): __________
- **Water Table Present?** Yes ☑ No ☐ Depth (inches): __________
- **Saturation Present?** Yes ☑ No ☐ Depth (inches): __________

**Remarks:**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
APPENDIX B

OEPA WETLAND ORAM FORMS
Wetland 01

**Site:** AEP East Lima to Maddox  
**Rater(s):** Audrey Hanner and Stacey Mueller  
**Date:** 9/4/2019

### 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) (2 pts)
- 0.1 to >0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

**Field Id:** w-aeh-20190904-01

**Wetland Area:** 0.05 acres

### 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 to <50m (164ft to <164ft) 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)

**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)

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)

3c. Maximum water depth. Select one.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- 0.1m (<15.7in) (1)

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

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)

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)

### 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)

**Subtotal this page:** 17

**ORAM v. 5.0 Field Form Quantitative Rating**
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)
- 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 5 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- 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 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.

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

Category 1

GRAND TOTAL (max 100 pts)
APPENDIX C

OEPA HHEI STREAM FORMS
Primary Headwater Habitat Evaluation Form

AEP East Lima to Maddox

HHEI Score (sum of metrics 1, 2, 3): 18

Site Name/Location: AEP East Lima to Maddox

Stream Channel Modifications: Channelized, culverted

Distance (ft): 200

Lat: 40.87605
Long: -84.28208

Date: 09/04/19
Scorer: aeh
Comments: Ephemeral

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

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.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>PERCENT</th>
<th>TYPE</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bldr Slabs [16 pts]</td>
<td>0%</td>
<td>BLDR SLABS [16 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>Boulder (&gt;256 mm) [16 pts]</td>
<td>0%</td>
<td>BOULDER (&gt;256 mm) [16 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>Bedrock [16 pt]</td>
<td>0%</td>
<td>BEDROCK [16 pt]</td>
<td>0%</td>
</tr>
<tr>
<td>Cobble (65-256 mm) [12 pts]</td>
<td>0%</td>
<td>COBBLE (65-256 mm) [12 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>Gravel (2-64 mm) [9 pts]</td>
<td>0%</td>
<td>GRAVEL (2-64 mm) [9 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>Sand (&lt;2 mm) [6 pts]</td>
<td>0%</td>
<td>SAND (&lt;2 mm) [6 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>Articial [3 pts]</td>
<td></td>
<td>ARTIFICIAL [3 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>Clay or Hardpan [0 pt]</td>
<td></td>
<td>CLAY or HARDPAN [0 pt]</td>
<td>0%</td>
</tr>
<tr>
<td>Fine Detritus [3 pts]</td>
<td>15%</td>
<td>FINE DETRITUS [3 pts]</td>
<td>15%</td>
</tr>
<tr>
<td>Leaf Pack/Woody Debris [3 pts]</td>
<td>85%</td>
<td>LEAF PACK/WOODY DEBRIS [3 pts]</td>
<td>85%</td>
</tr>
<tr>
<td>Boulder (&gt;256 mm) [16 pts]</td>
<td>0%</td>
<td>BOULDER (&gt;256 mm) [16 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>Bladr Slabs [16 pts]</td>
<td>0%</td>
<td>BLDR SLABS [16 pts]</td>
<td>0%</td>
</tr>
</tbody>
</table>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock = 0.00%

Score of Two Most Predominant Substrate Types: 6

Total Number of Substrate Types: 2

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):

- > 30 centimeters [20 pts]
- > 22.5 - 30 cm [30 pts]
- > 10 - 22.5 cm [25 pts]
- > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- > 4.0 meters (> 13') [30 pts]
- > 5 cm - 10 cm [15 pts]
- < 5 cm [5 pts]
- NO WATER OR MOIST CHANNEL [0 pts]

Max = 30

3. Bank Full Width (Measured as the average of 3-4 measurements) (Check ONLY one box):

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

Max = 30

Riparian Zone and Floodplain Quality:

<table>
<thead>
<tr>
<th>L</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>M</td>
</tr>
<tr>
<td>D</td>
<td>I</td>
</tr>
<tr>
<td>N</td>
<td>R</td>
</tr>
<tr>
<td>N</td>
<td>R</td>
</tr>
</tbody>
</table>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

Flow Regime (At Time of Evaluation) (Check ONLY one box):

- Moist Channel, isolated pools, no flow (Intermittent)
- Dry channel, no water (Ephemeral)

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- None
- 0.5
- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- >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)

This information must also be completed:

October 24, 2002 Revision
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? □ Yes ✔ No QHEI Score □□□□□ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

□ WWH Name: ___________________________ Distance from Evaluated Stream ______________

□ CWH Name: ___________________________ Distance from Evaluated Stream ______________

□ EWH Name: ___________________________ Distance from Evaluated Stream ______________

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: ___________________________ NRCS Soil Map Page: ______ NRCS Soil Map Stream Order ______

County: ___________________________ Township / City: ___________________________

MISCELLANEOUS

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

Photograph Information: ___ photos, upstream, downstream and substrate

Elevated Turbidity? (Y/N): ___ Canopy (% open): 100%

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: ___________________________

Overall Stability of BOTH Stream Banks (check one): Stable □ Moderately Stable ✔ Unstable □

BIOTIC EVALUATION

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: ___________________________

____________________________________________________________________________________

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

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

FLOW ➔

ag field
green
entrance
culvert
roadway
Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION: AEP East Lima to Maddox

LENGTH OF STREAM REACH (ft): 200
DATE: 09/04/19
PERCENT FLOODPLAIN QUALITY: aeh

NOTE: Complete All Items On This Form - Refer to “Field Evaluation Manual for Ohio’s PHWH Streams” for Instructions

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.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>PERCENT</th>
<th>TYPE</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDR SLABS [16 pts]</td>
<td>0%</td>
<td>SILT [3 pt]</td>
<td>20%</td>
</tr>
<tr>
<td>BOULDER (&gt;256 mm) [16 pts]</td>
<td>0%</td>
<td>LEAF PACK/WOODY DEBRIS [3 pts]</td>
<td>70%</td>
</tr>
<tr>
<td>BEDROCK [16 pt]</td>
<td>0%</td>
<td>FINE DETRITUS [3 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>COBBLE (65-256 mm) [12 pts]</td>
<td>0%</td>
<td>CLAY or HARDPAN [0 pt]</td>
<td>0%</td>
</tr>
<tr>
<td>GRAVEL (2-64 mm) [9 pts]</td>
<td>0%</td>
<td>MUCK [0 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>SAND (&lt;2 mm) [6 pts]</td>
<td>0%</td>
<td>ARTIFICIAL [3 pts]</td>
<td>10%</td>
</tr>
</tbody>
</table>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6
TOTAL NUMBER OF SUBSTRATE TYPES: 3

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):

   > 30 centimeters [20 pts]
   > 22.5 - 30 cm [30 pts]
   > 10 - 22.5 cm [25 pts]
   > 1.5 m (<=3' 3") [5 pts]
   > 2.0 m - 3.0 m (> 9' 7" - 4' 8") [15 pts]
   > 3.0 m - 4.0 m (> 9' 7" - 13') [30 pts]
   > 4.0 m (> 13') [30 pts]
   > 5 cm - 10 cm [15 pts]
   < 5 cm [5 pts]
   NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (Inches): 0.50

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

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

COMMENTS: AVERAGE BANKFULL WIDTH (Feet): 0.50

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

<table>
<thead>
<tr>
<th>ROLLAR WIDTH</th>
<th>FLOODPLAIN QUALITY</th>
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</thead>
<tbody>
<tr>
<td>(Per Bank)</td>
<td>(Most Predominant per Bank)</td>
</tr>
<tr>
<td>Wide &gt;10m</td>
<td>Mature Forest, Wetland</td>
</tr>
<tr>
<td>Moderate 5-10m</td>
<td>Immature Forest, Shrub or Old Field</td>
</tr>
<tr>
<td>Narrow &lt;5m</td>
<td>Residential, Park, New Field</td>
</tr>
<tr>
<td>None</td>
<td>Fenced Pasture</td>
</tr>
</tbody>
</table>

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

- Stream Flowing
- Subsurface flow with isolated pools (Interstitial)

COMMENTS: Moist Channel, isolated pools, no flow (Intermittent)

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- None
- 0.5
- 1.0
- 1.5
- 2.0
- 2.5
- 3.0

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)

HHEI Metric Points

<table>
<thead>
<tr>
<th>Substrate Points</th>
<th>Pool Depth Max</th>
<th>Bankfull Width Max</th>
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</thead>
<tbody>
<tr>
<td>9</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

HHEI Score (sum of metrics 1, 2, 3): 19
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? □ Yes ✔ No QHEI Score _________ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: ____________________________ Distance from Evaluated Stream ___________

☐ CWH Name: ____________________________ Distance from Evaluated Stream ___________

☐ EWH Name: ____________________________ Distance from Evaluated Stream ___________

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: ____________________________ NRCS Soil Map Page: ____________ NRCS Soil Map Stream Order ____________

County: ____________________________ Township / City: ____________________________

MISCELLANEOUS

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

Photograph Information: 3 photos, upstream, downstream and substrate

Elevated Turbidity? (Y/N): ________ Canopy (% open): 100%

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: ____________________________________________________________________________________________________________________________

Overall Stability of BOTH Stream Banks (check one): Stable □ Moderately Stable ✔ Unstable □

BIOTIC EVALUATION

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: __________________________________________________________________________________________________________________________

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

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

FLOW ➔

ag field

culvert

maintained lawn

ag field

road
Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION: AEP East Lima to Maddox

SITE NUMBER: hh-aeh-20190904-03

LENGTH OF STREAM REACH (ft): 200

DATE: 09/04/19

RIVER BASIN: AEP East Lima to Maddox

DRAINAGE AREA (mi²): 0.01

LAT.: 40.92326

LONG.: -84.08115

RIVER CODE: RIVER MILE:

NOTE: Complete All Items On This Form - Refer to “Field Evaluation Manual for Ohio’s PHWH Streams” for Instructions

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL

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.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>PERCENT</th>
<th>TYPE</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bldr Slabs [16 pts]</td>
<td>0%</td>
<td>SILT [3 pt]</td>
<td>15%</td>
</tr>
<tr>
<td>Boulder (&gt;256 mm) [16 pts]</td>
<td>0%</td>
<td>LEAF PACK/WOODY DEBRIS [3 pts]</td>
<td>80%</td>
</tr>
<tr>
<td>Bedrock [16 pt]</td>
<td>0%</td>
<td>FINE DETRITUS [3 pts]</td>
<td>0%</td>
</tr>
<tr>
<td>Cobble (65-256 mm) [12 pts]</td>
<td>0%</td>
<td>CLAY or HARDPAN [0 pt]</td>
<td>0%</td>
</tr>
<tr>
<td>Gravel (2-64 mm) [9 pts]</td>
<td>0%</td>
<td>MUCK [0 pt]</td>
<td>0%</td>
</tr>
<tr>
<td>Sand (&lt;2 mm) [6 pts]</td>
<td>0%</td>
<td>ARTIFICIAL [3 pts]</td>
<td>5%</td>
</tr>
</tbody>
</table>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Bldr Slabs, Boulder, Cobble, Bedrock: 6 TOTAL NUMBER OF SUBSTRATE TYPES: (B)

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):

- > 30 centimeters [20 pts]
- > 22.5 - 30 cm [30 pts]
- > 10 - 22.5 cm [25 pts]
- > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- > 4.0 meters (> 13') [30 pts]
- > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]

COMMENTS: MAXIMUM POOL DEPTH (Inches): 0.50

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

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

COMMENTS: AVERAGE BANKFULL WIDTH (Feet): 1.00

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

<table>
<thead>
<tr>
<th>R</th>
<th>L</th>
<th>R</th>
<th>L</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide &gt;10m</td>
<td>Conservation Tillage</td>
<td>Moderate Forest, Wetland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate 5-10m</td>
<td>Urban or Industrial</td>
<td>Immature Forest, Shrub or Old Field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow &lt;5m</td>
<td>Open Pasture, Row Crop</td>
<td>Residential, Park, New Field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>Mining or Construction</td>
<td>Fenced Pasture</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMMENTS:

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

- Dry channel, no water (Ephemeral)
- Moist Channel, isolated pools, no flow (Intermittent)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- None: 1.0
- 0.5: 1.5
- 1.0: 2.0
- 2.0: 3.0
- 3.0: >3

STREAM GRADIENT ESTIMATE

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

HHEI Score (sum of metrics 1, 2, 3): 19

PHWH Form Page - 1
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? [ ] Yes [ ] No QHEI Score ________ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

[ ] WWH Name: ___________________________ Distance from Evaluated Stream _________

[ ] CWH Name: ___________________________ Distance from Evaluated Stream _________

[ ] EWH Name: ___________________________ Distance from Evaluated Stream _________

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: ___________________________ NRCS Soil Map Page: _______ NRCS Soil Map Stream Order _______

County: ___________________________ Township / City: ___________________________

MISCELLANEOUS

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

Photograph Information: _______ photos, upstream, downstream and substrate _______

Elevated Turbidity? (Y/N): _______ Canopy (% open): _______ 100%

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: ____________________________________________________________

Overall Stability of BOTH Stream Banks (check one): Stable _______ Moderately Stable [ ] Unstable _______

BIOTIC EVALUATION

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: ____________________________________________________________

___________________________________________________________________________________________

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

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

FLOW

drawing text and diagram

ag field

gravel entrance

culvert

roadway

October 24, 2002 Revision
Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 18

SITE NAME/LOCATION: AEP East Lima to Maddox

SITE NUMBER: _ RIVER BASIN: _ DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): _ LAT: 40.92724 LONG: -84.43673 RIVER CODE: _ RIVER MILE: _

DATE: 09/04/19 SCORER: aeh COMMENTS: Ephemerol

NOTE: Complete All Items On This Form - Refer to “Field Evaluation Manual for Ohio’s PHWH Streams” for Instructions

STREAM CHANNEL MODIFICATIONS: 

<table>
<thead>
<tr>
<th>SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
</tr>
<tr>
<td>BLDR SLABS [16 pts]</td>
</tr>
<tr>
<td>BOULDER (&gt;256 mm) [16 pts]</td>
</tr>
<tr>
<td>COBBLE (65-256 mm) [12 pts]</td>
</tr>
<tr>
<td>SAND (&lt;2 mm) [6 pts]</td>
</tr>
</tbody>
</table>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% 

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2

MAXIMUM POOL DEPTH (centimeters): Max = 30

AVERAGE BANKFULL WIDTH (Feet): 1.00

NOTE: Complete All Items On This Form - Refer to “Field Evaluation Manual for Ohio’s PHWH Streams” for Instructions

STREAM CHANNEL MODIFICATIONS: 

<table>
<thead>
<tr>
<th>MODIFICATIONS:</th>
<th>NONE / NATURAL CHANNEL</th>
<th>RECOVERED</th>
<th>RECOVERING</th>
<th>RECENT OR NO RECOVERY</th>
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Modified Class 1

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY:

<table>
<thead>
<tr>
<th>L</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide &gt;10m</td>
<td>Moderate 5-10m</td>
</tr>
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</table>

FLOODPLAIN QUALITY:

<table>
<thead>
<tr>
<th>L</th>
<th>R</th>
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<tbody>
<tr>
<td>Conservation Tillage</td>
<td>Urban or Industrial</td>
</tr>
<tr>
<td>Mature Forest, Wetland</td>
<td>Open Pasture, Row Crop</td>
</tr>
<tr>
<td>Immature Forest, Shrub or Old Field</td>
<td>Mining or Construction</td>
</tr>
</tbody>
</table>

FLOW REGIME (At Time of Evaluation):

Stream Flowing

Subsurface flow with isolated pools (Interstitial)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel):

<table>
<thead>
<tr>
<th>Sinuosity</th>
<th>0.5</th>
<th>1.0</th>
<th>1.5</th>
<th>2.0</th>
<th>2.5</th>
<th>3.0</th>
</tr>
</thead>
</table>

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)

October 24, 2002 Revision PHWH Form Page - 1
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - [ ] Yes [✓] No QHEI Score ________ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

[ ] WWH Name: ___________________________ Distance from Evaluated Stream ________
[ ] CWH Name: ___________________________ Distance from Evaluated Stream ________
[ ] EWH Name: ___________________________ Distance from Evaluated Stream ________

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: ___________________________ NRCS Soil Map Page: _______ NRCS Soil Map Stream Order ______

County: ___________________________ Township / City: ___________________________

MISCELLANEOUS

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

Photograph Information: [ ] 3 photos, upstream, downstream and substrate

Elevated Turbidity? (Y/N): _______ Canopy (% open): _______ 100%

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: ________________________________

Overall Stability of BOTH Stream Banks (check one): [ ] Stable [ ] Moderately Stable [✓] Unstable [ ]

BIOTIC EVALUATION

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)


Comments Regarding Biology: ________________________________

______________________________
______________________________

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

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

ag field

culvert

maintained lawn

ROADWAY

FLOW ➔
APPENDIX D

DELINEATED FEATURES PHOTOGRAPHS
D1 – DELINEATED WETLANDS
<table>
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<tr>
<th>Date:</th>
<th>Description:</th>
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| September 04, 2019 | Wetland 01  
PEM wetland  
Category 1 |

Facing North  
Facing South  

Facing East  
Facing West  

Soil
D2 – DELINEATED STREAMS


<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Description:</th>
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<tbody>
<tr>
<td>Stream 01</td>
</tr>
<tr>
<td>Ephemeral</td>
</tr>
<tr>
<td>Modified Class 1</td>
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</table>

**Facing Upstream**

**Facing Downstream**

**Substrate**
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<thead>
<tr>
<th><strong>Date:</strong></th>
<th></th>
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<tbody>
<tr>
<td>September 4, 2019</td>
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</table>

**Description:**
Stream 02
Ephemeral
Modified Class 1

**Facing Upstream**

**Facing Downstream**

**Substrate**
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<th>Description:</th>
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<tbody>
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<td>Ephemeral</td>
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<tr>
<td></td>
<td>Modified Class 1</td>
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</tbody>
</table>

**Facing Upstream**

**Facing Downstream**

**Substrate**
**PHOTOGRAPHIC RECORD**  
**STREAMS**

<table>
<thead>
<tr>
<th>Date:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 4, 2019</td>
<td>Stream 04</td>
</tr>
<tr>
<td></td>
<td>Ephemeral</td>
</tr>
<tr>
<td></td>
<td>Modified Class 1</td>
</tr>
</tbody>
</table>

- **Date:** September 4, 2019  
- **Description:** Stream 04, Ephemeral, Modified Class 1  

Facing Upstream

Facing Downstream

Substrate
APPENDIX E

CORRESPONDENCE LETTERS FROM USFWS AND ODNR
April 19, 2019

Charlotte Stallone  
AECOM  
525 Vine Street, Suite 1800  
Cincinnati, Ohio 45202

Re: 19-251; East Lima-Maddox 345 kV Re-conductoring Project

Project: The proposed project involves the re-conductoring approximately 30 miles of 345 kV line between East Lima Station in Allen County to Maddox Station in Van Wert County.

Location: The proposed project is located in Allen, Putnam and Van Wert Counties, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR’s experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has the following records at or within a one-mile radius of the project area:

- Purple wartyback (*Cyclonaias tuberculata*), SC
- Wavy-rayed lampmussel (*Lampsilis fasciola*), SC
- Creek heelsplitter (*Lasmigona compressa*), SC
- Clubshell (*Pleurobema clava*), E, FE
- Purple lilliput (*Toxolasma lividus*), E, FSC
- Deertoe (*Truncilla truncata*), SC
- Greater redhorse (*Moxostoma valenciennesi*), T, FSC
- Bald eagle (*Haliaeetus leucocephalus*), FSC

The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that
rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; A = species recently added to state inventory, status not yet determined; X = presumed extirpated in Ohio; FE = federal endangered, FT = federal threatened, FSC = federal species of concern, FC = federal candidate species.

**Fish and Wildlife:** The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered mussel, the purple lilliput (*Toxolasma lividus*), a state endangered mussel, the rabbitsfoot (*Quadrula cylindrica cylindrica*), a state endangered mussel, and the pondhorn (*Uniomerus tetralasmus*), a state threatened mussel. This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2018), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a
professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2018) can be found at:


The project is within the range of the pugnose minnow \textit{(Opsopoeodus emiliae)}, a state endangered fish, and the greater redhorse \textit{(Moxostoma valenciennesi)}, a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the upland sandpiper \textit{(Bartramia longicauda)}, a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species’ nesting period of April 15 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the northern harrier \textit{(Circus cyaneus)}, a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species’ nesting period of May 15 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

**Water Resources:** The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.


ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or Sarah.Tebbe@dnr.state.oh.us if you have questions about these comments or need additional information.

John Kessler
Environmental Services Administrator
Dear Ms. Stallone,

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered Indiana bat (Myotis sodalis) and the federally threatened northern long-eared bat (Myotis septentrionalis). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees ≥3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, we recommend that removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats.
bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend that the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

Patrice Ashfield
Ohio Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
    Kate Parsons, ODNR-DOW
APPENDIX C

STATE HISTORIC PRESERVATION OFFICE COORDINATION
January 27, 2020

Mr. Ryan J. Weller
Weller & Associates, Inc.
1395 West Fifth Avenue
Columbus, Ohio 43212

RE: East Lima-Maddox 345kV Reconductoring Project, Allen, Putnam, and Van Wert Counties, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on December 6, 2019 and December 31, 2019 regarding the proposed East Lima-Maddox 345kV Reconductoring Project, Allen, Putnam, and Van Wert Counties, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).


A literature review, visual inspection, surface collection, shovel probe, and shovel test unit excavation was completed as part of the investigations. No previously identified archaeological sites are located within the project area. No archaeological sites were identified during this survey. Based on the information provided, our office agrees with your determination and no further archaeological work is necessary.


A literature review and field survey were completed as part of the investigations. Ten (10) properties fifty years of age or older were identified within the project area and/or 1,000’ study area that may have a direct line of sight to the project. It is Weller’s recommendation that the identified properties are not eligible for inclusion in the National Register of Historic Places due to historical and architectural insignificance. Our office agrees with Weller’s recommendations of eligibility.

Based on the information provided, we agree the project will not affect historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during implementation of this project. In such a situation, this office should be contacted. If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorrocks@ohiohistory.org, or Joy Williams at jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Krista Horrocks, Project Reviews Manager
Resource Protection and Review

RPR Serial No: 1081816, 1082123