Letter of Notification for the Arboles 138 kV Station Project

AEP OHIO TRANSMISSION COMPANY

An AEP Company

BOUNDLESS ENERGY

PUCO Case No. 21-1084-EL-BLN

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

Submitted by:
AEP Ohio Transmission Company, Inc.

December 9, 2021

LETTER OF NOTIFICATION

AEP Ohio Transmission Company, Inc.

Arboles 138 kV Station Project

4906-6-05 Accelerated Application Requirements

AEP Ohio Transmission Company, Inc. (the "Company") provides the following information to the Ohio Power Siting Board ("OPSB") in accordance with the accelerated application requirements of Ohio Administrative Code Section 4906-6-05.

4906-6-05(B) General Information

B(1) Project Description

The applicant shall provide 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 or Construction Notice application.

The Company is proposing the Arboles 138 kilovolt (kV) Station Project (the "Project"), in Scioto Township, Pike County, Ohio. The Project consists of constructing a new approximately 2.6-acre 138 kV electric transmission station on a site near the Company's existing Don Marquis 345/765 kV Station. The Project is located on property owned by a governmental agency customer (the "Customer") and will support the Customer's request for electric service due to the planned decommissioning of their 345 kV station. The new station will receive service from three existing 138-kV circuits from Don Marquis, Waverly and South Lucasville. The purpose of the new station is to feed four circuits supplying the customer's 138-12 kV delivery points. Transmission line components associated with Arboles Station will be filed separately with the OPSB. The location of the Project is shown on Figures 1 and 2 in Appendix A.

The Project meets the requirements for a Letter of Notification ("LON") as defined by Item (2)(a) of 4906-1-01 *Appendix A Application Requirement Matrix For Electric Power Transmission Lines*:

(3) Constructing a new electric power transmission substation

The Project has been assigned PUCO Case No. 21-1084-EL-BLN.

B(2) Statement of Need

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

As part of a governmental agency customer service request, the Company will be required to build a new 138 kV station named Arboles Station to serve two new customer facilities located near Piketon, Ohio. The Customer requested the Company to build a new 138kV station that will feed two stations at the customer's site. Three 138kV transmission circuits will feed the new Arboles Station with four 138 kV circuits exiting Arboles Station to feed the 2 customer stations. Per the requirements from the Customer, three

independent circuits are needed to serve this location due to the sensitive nature of the load. Any additional details can be provided confidentially.

The addition of Arboles Station also benefits existing customers by creating a through-path. The Station will interconnect with the existing Don Marquis-South Lucasville 138 kV line. This line serves load to Wakefield Station (3.5 MW peak load, 1,989 customers). Adding breakers at Arboles Station will reduce the exposure of potential outages caused by the Don Marquis-South Lucasville 138 kV line.

Failure to move forward with the proposed project will result in the Company's inability to serve the customer's load expectations and thereby jeopardize the customer's plans in the area.

The need and solution for this supplemental project was presented and reviewed with stakeholders in the October 26th, 2018 and March 10th, 2020 PJM SRRTEP meeting (s2213). The Project was inadvertently excluded from the Proposed Substations (Table FE-T10) portion of the 2021 LTFR, however, the Project was referenced in the Planned Transmission Lines portion of the LTFR on pages 14-17 (Table FE-T9) and will be referenced in the Company's 2022 LTFR.

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.

The location of the Project in relation to existing transmission lines and substations is shown on Figure 1, in Appendix A. Figure 2, in Appendix A, identifies the Project components on a 2019 aerial photograph.

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.

The Project is located entirely on Customer property. Other alternatives would require impacting neighboring properties, as opposed to remaining entirely on the Customer's property, or would require extensive civil earthwork due to the steep terrain in the vicinity of the Company's Don Marquis Station. In addition, the proposed station location minimizes the length of existing 138 kV lines powering Arboles Station, as well, as limiting mileage of future 138 kV line extensions required to serve the Customer. The Project is located on undeveloped vacant land with paved road access, will not impact any wetlands or streams, and requires minimal tree clearing. The location of the Project minimizes impacts to the community and the environment, while taking into account the Customer's engineering and construction needs. The Project represents the most suitable location and most appropriate solution for meeting both the Company's and Customer's needs.

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.

The Company will inform affected property owners and tenants about this Project through several different mediums. Within seven days of filing this LON, the Company will issue a public notice in a newspaper of general circulation in the Project area. The notice will comply with all requirements of Ohio Revised Code ("OAC") Section 4906-6-08(A)(1-6). Further, the Company has mailed (or will mail) a letter, via first class mail, to affected landowners, tenants, contiguous owners and any other landowner the Company may approach for an easement necessary for the construction, operation, or maintenance of the Project. The letter will comply with all requirements of OAC Section 4906-6-08(B). The Company maintains a website (http://aeptransmission.com/ohio/) which provides the public access to an electronic copy of this LON and the public notice for this LON. An electronic copy of the LON will be served to the public library in each political subdivision for this Project. The Company retains ROW land agents that discuss Project timelines, construction and restoration activities and convey information to affected owners and tenants throughout the 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 commence in March 2022 with a proposed in-service date in December 2022.

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.

Figure 1 in Appendix A identifies the location of the Project area on a U.S. Geological Survey 1:24,000 quadrangle map. Figure 2 in Appendix A consists of an aerial map of the Project area.

To visit the Project from downtown Columbus, Ohio, take I-70 W/I-71 S toward Cincinnati. Take exit 101 for I-270 E. Take exit 52 to merge onto US-23 S toward Circleville. Take the US-23 S exit toward Waverly/US-50 W/Portsmouth. Continue onto US-23 S for 22.2 miles. Take the exit toward American Centrifuge Facility, making a left at the exit ramp and continue for 1 mile. The station will be located on the left (latitude 39.014543, longitude -83.012350).

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 will be constructed on a single parcel (Parcel Number 200000186000) which is owned by the Customer. No other property easements, options, or land use agreements are necessary to construct the Project or operate the station.

Property Parcel Number	Agreement Type	Easement or Option Obtained (Yes/No)
200000186000	Supplemental Easement	No

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.

The Project is proposed to have a four-string breaker and a half configuration and include the following equipment:

- 11 - 138 kV Circuit Breakers
- 1 – Drop-In Control Module

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.

Not applicable. 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.

Not applicable. No occupied residences or institutions are located within 100 feet of the Project.

B(9)(c) Project Costs

The estimated capital cost of the project.

The capital cost estimate for the Project, which is comprised of applicable tangible and capital costs, is approximately $13.2 million using a Class 4 estimate. Pursuant to the PJM OATT, the costs for this Project will be recovered in the AEP Ohio Transmission Company Inc.'s FERC formula rate (Attachment H-20 to the PJM OATT) and allocated to the AEP Zone.

B(10) Social and Economic Impacts

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

B(10)(a)

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 is located near Piketon in Scioto Township, Pike County, Ohio on the Customer's property. Land use and natural communities observed within the proposed Project boundary include a grass field maintained by periodic mowing and upland forests. The surrounding land use includes maintained herbaceous ROW, upland forests, and industrial land. No places of worship, schools, institutions, hospitals, cemeteries, landmarks, or recreational areas were identified within 1,000 feet of the proposed station.

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.

No properties registered as agricultural district land are located in the Project area based on an e-mail from the Pike County Auditor's Office on October 13, 2021. The Project area consists of 2.6 acres and all of the land has been vacant with periodic mowing with the exception of a few trees in the northwest corner of the Project area.

B(10)(c) Archaeological and Cultural Resources

Provide a description of the applicant's investigation concerning the presence or absence of significant archeological 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.

The Company's consultant completed Cultural Resource Assessment on the Project area, and coordinated the Assessment with the State Historic Preservation Office ("SHPO") on October 21, 2021. SHPO concluded on November 19, 2021 that the project will have no effect on historic properties (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.

A Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000004 during construction of the Project. The Company will implement and maintain best management practices (BMPs), as outlined in the project-specific Storm Water Pollution Prevention Plan (SWPPP) to minimize erosion and control sediment to protect surface water quality during storm events.

The Company's consultant completed a wetland delineation and stream identification field review of the existing and planned ROW for the Project (Appendix E). No wetlands, streams or ponds were delineated within the environmental survey corridor for the Project. One non-jurisdictional ditch was identified along the eastern and southern property boundary. Impacts to aquatic resources are not anticipated; therefore, a Clean Water Act Section 401/404 permit will not be required for construction of the Project.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), the Arboles Substation is not located in a 100-year floodplain. As such, the Company will not be required to obtain floodplain permits from Pike County for the construction of any structures within these areas.

There are no other known local, state or federal requirements that must be met prior to commencement of the 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.

Coordination with Ohio Department of Natural Resource Department of Wildlife (ODNR-DOW) was initiated on March 10, 2021 to obtain Environmental Review and Ohio Natural Heritage Database records within a 1-mile buffer area around the project. Their e-mail response was received on May 6, 2021. In addition, a consultation request was submitted to the U.S. Fish and Wildlife Service (USFWS) on March 10, 2021 with a response received on March 22, 2021. A copy of the Agency Correspondence letters are provided in Appendix C.

Based on consultation from the USFWS, it was confirmed that the project area lies within the range of two federally listed species including Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*). The USFWS recommended avoiding tree removal, wherever possible. However, if clearing of trees ≥3 inches diameter breast height (dbh) cannot be avoided, the USFWS recommend removal of any trees ≥3 inches dbh only occur between October 1 and March 31. If implementation of seasonal tree cutting is not feasible, the USFWS recommends a summer presence/absence survey be conducted in coordination with the Ohio Field Office.

Based on the consultation response from ODNR-DOW, the Project area is within range of four state-listed bat species including Indiana bat, northern long-eared bat, little brown bat (*Myotis lucifugus*), and tricolored bat (*Perimyotis subflavus*). If trees must be cut, ODNR-DOW recommends implementing seasonal tree cutting from October 1 to March 31 and conserving trees with loose, shaggy bark; with crevices, holes, or cavities; or with a dbh greater than or equal to 20 inches. If trees must be cut during summer months, ODNR-DOW recommends a mist net survey or acoustic survey to be conducted from June 1 to August 15, prior to any cutting. Additionally ODNR-DOW recommends a desktop habitat assessment for potential hibernaculum(a). The assessment was completed in December 2021 and coordination with ODNR is occurring, once the coordination is complete a copy will be provided to OPSB.

ODNR-DOW also stated that the Project must not have an impact on freshwater native mussels within the Project area and per the Ohio Mussel Survey Protocol (ODNR-DOW, 2020), all Group 2, 3, and 4 streams require mussel surveys. No in-stream work is currently proposed during construction activities and will not directly impact streams crossed by the Project area. Therefore, mussel surveys are not required. The ODNR-DOW recommends no in-water work in any perennial stream from April 15 through June 30 to reduce impacts to indigenous species and their habitat. Because no in-water work is proposed (no streams in the Project area), the Project is not likely to impact threatened or endangered aquatic species.

The Project is within the range of timber rattlesnake (*Crotalus horridus*), eastern spadefoot toad (*Scaphiopus holbrookii*), and midland mud salamander (*Pseudotriton montanus diastictus*). ODNR states that due to the location, type of habitat within the project area, and type of work proposed, the Project is not likely to impact these species.

Based on the nature of the proposed project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated. Winter tree clearing will be implemented to reduce impacts to bat species and their habitat. The Company will coordinate with USFWS and ODNR regarding additional construction requirements, if winter clearing becomes unfeasible.

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.

Coordination letters were submitted to the USFWS and ODNR requesting a review of the Project and identification of areas of ecological concern. The USFWS response email was received on March 22, 2021 (Appendix C), and indicated no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project. The ODNR response received on May 6, 2021 (Appendix C), indicated no known unique ecological sites, geologic features, scenic rivers, state wildlife areas, state natural preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the Project area.

The Company's consultant prepared an Ecological Survey Report for the Project area and the surrounding vicinity of the customers' property, see Appendix D. Wetland delineation and stream identification field surveys were completed within the Project area in January 2021. No wetlands, streams or ponds were identified within the proposed Project boundary. One non-jurisdictional ditch was delineated along the eastern and southern side of the Project area. Land use and natural communities observed within the proposed Project area include a maintained grass field and upland forests.

Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) Map Number 39131C0225C, effective date 11/4/2010, the Project is not located within the 100-year floodplain. Therefore, no floodplain impacts are anticipated.

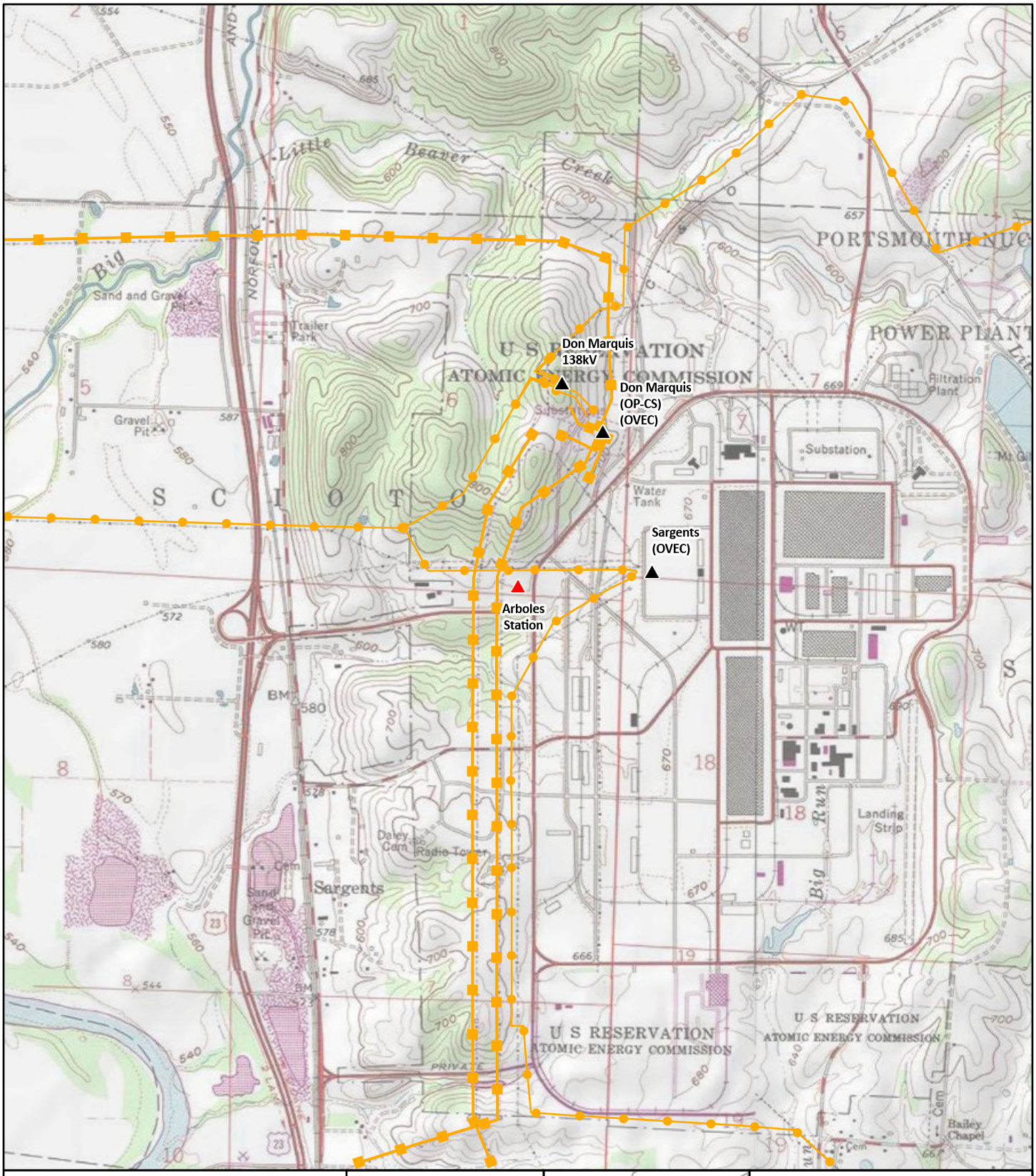
B(10)(g) Unusual Conditions

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

To the best of the Company's knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.

LETTER OF NOTIFICATION FOR THE ARBOLES 138 KV STATION PROJECT

Appendix A Project Maps



Path: \\dc1vs01\gisproj\AA\AEP\Arboles\Maps\Arboles_Figures_Pro\Arboles_Figures_Pro.aprx

Legend

- ▲ Existing Substation
- ▲ Proposed Station

Existing Transmission Line

- Existing 138kV Line
- Existing 345-765kV Line

BASEMAP SOURCE:
Esri World Topographic Map, Copyright:© 2013 National Geographic Society, i-cubed

Piketon Quadrangle

Coordinate System:
StatePlane Ohio South
Datum: NAD 1983 (2011)
Scale: 1:24,000
1"=2000'

December 07, 2021

LOCATOR MAP

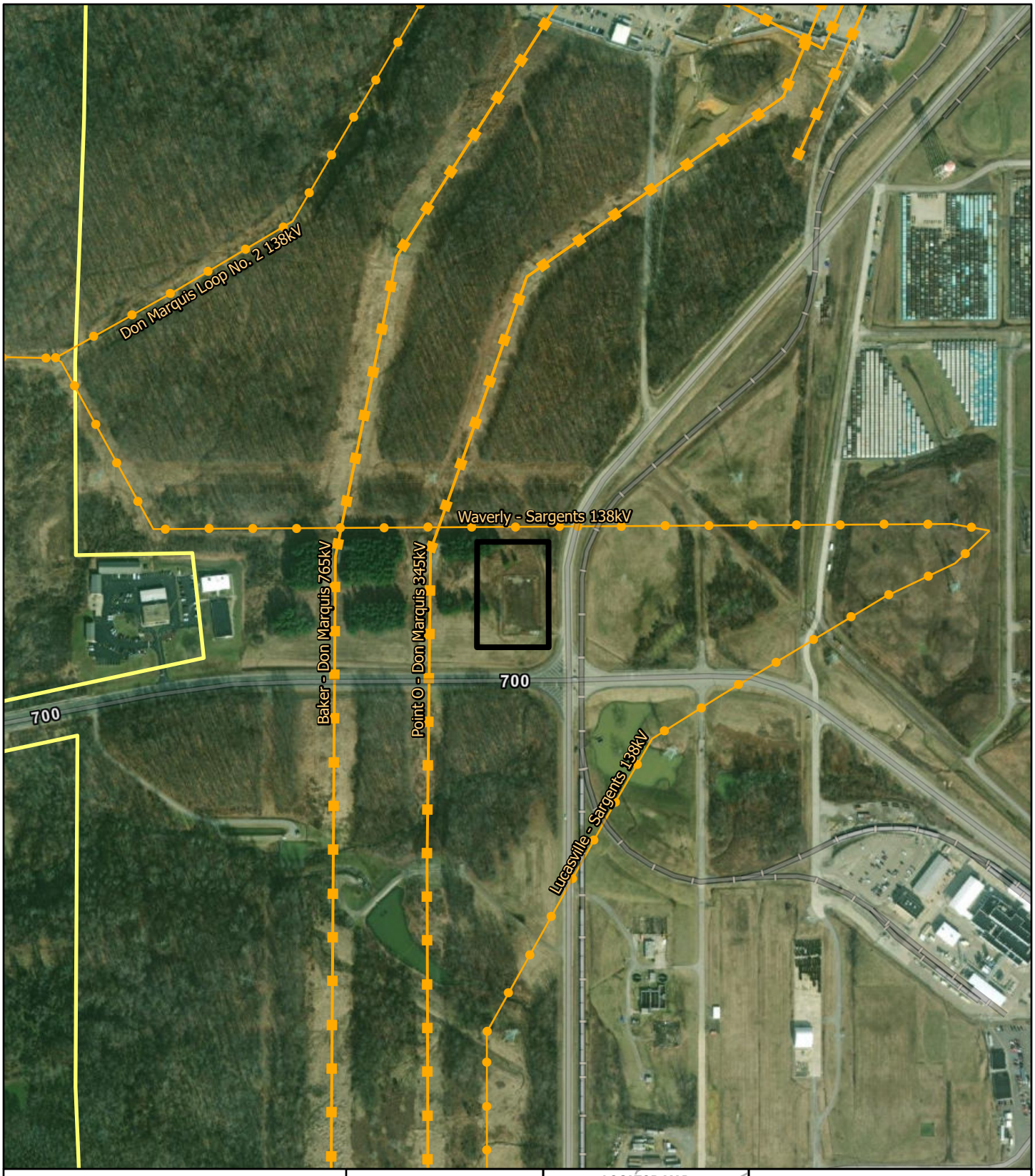
Scioto Twp, Pike County

Exhibit 1
Topographic Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Arboles 138kV Substation Project

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



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Legend

- 138kV Line
- 345kV and above Line
- Arboles Substation
- Parcel Boundary

BASEMAP SOURCE:
Esri World Imagery Service
Accessed12/8/2021

Coordinate System: StatePlane Ohio South FIPS 3402 ft
Datum: NAD 1983
Scale: 1:6,000
1"=500'

December 08, 2021

LOCATOR MAP

Scioto Twp, Pike County

Exhibit 2
Aerial Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Arboles 138kV Substation Project

0 200 400 600 800
Feet

LETTER OF NOTIFICATION FOR THE ARBOLES 138 KV STATION PROJECT

Appendix B PJM Interconnection Submittal

AEP Transmission Zone M-3 Process
DOE X-350

Need Number: AEP-2018-OH003

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 05/11/2020

Previously Presented:

Needs Meeting 10/26/2018

Solutions Meeting 3/10/2020

Project Driver:

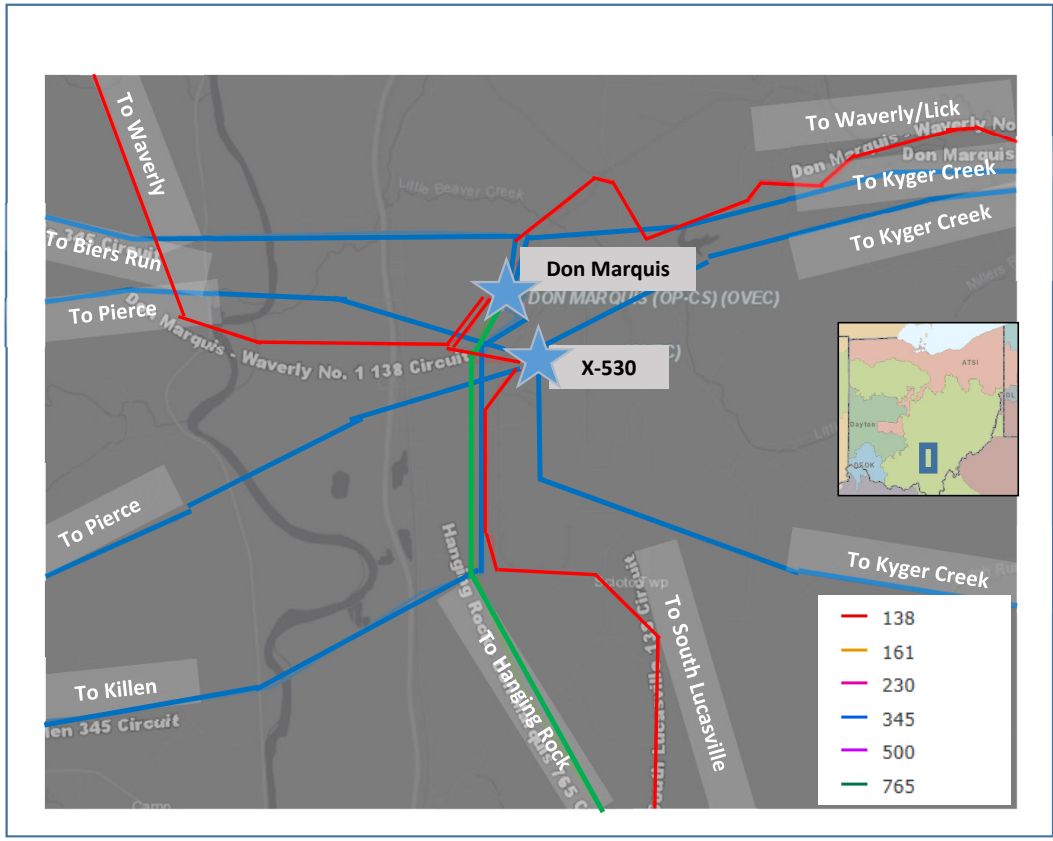
Customer Service

Specific Assumption Reference:

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 8)

Problem Statement:

The Ohio Valley Electric Corporation (OVEC) and the US Department of Energy (DOE) are in the process of terminating their connection at Don Marquis. The DOE has informed AEP of its intention to retire its X-530 Substation, adjacent to AEP's Don Marquis Substation and has requested a new delivery point from AEP at the same location. The new load is anticipated to peak near 38MW.



AEP Transmission Zone M-3 Process
DOE X-350

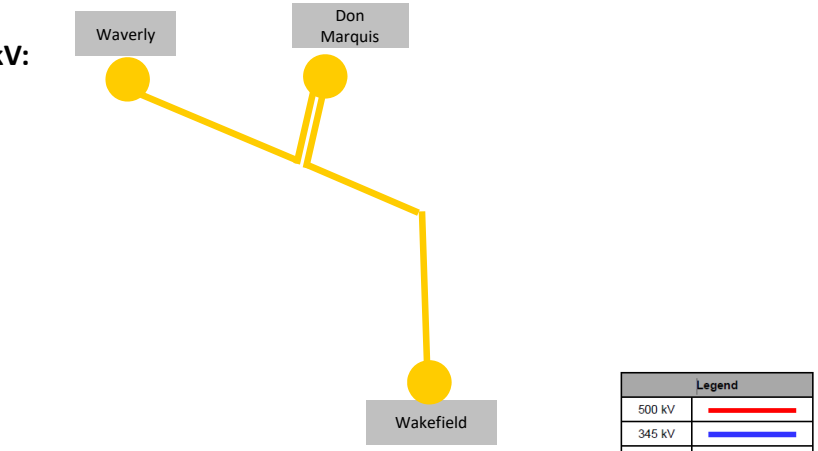
Need Number: AEP-2018-OH003

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 05/11/2020

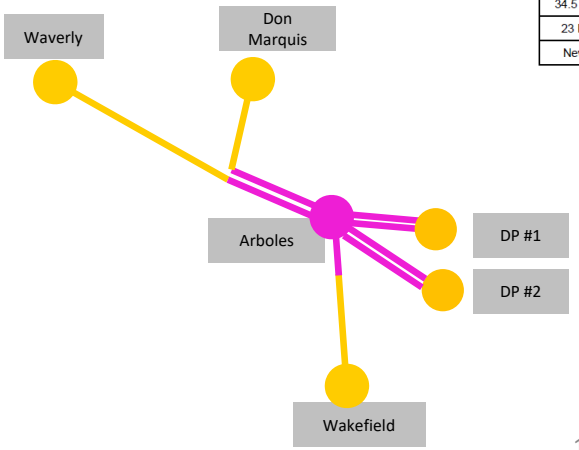
Selected Solution:

- Install a new transmission switching station (Arboles) to connect 138 kV lines to Don Marquis, Waverly, and Wakefield as well as four radial lines to serve the two new loads. The station will have 11 CBs (3000A, 40kA) in a breaker-and-a-half configuration. DOE requires 3 feeds and has requested 138 kV service. **(s2213.1) Estimated Cost: $13.4M (AEP)**
- 6-wire the existing Don Marquis extension for 0.4-miles and rebuild 0.7 miles of the existing Marquis-Wakefield line as double circuit for two feeds from Waverly and Don Marquis. **(s2213.2) Estimated Cost: $1.7M (AEP)**
- Construct ~0.3 miles of new line to terminate the South Lucasville circuit into Arboles. **(s2213.3) Estimated Cost: $1.3M (AEP)**
- Construct two independent lines to serve the X-555 substation (DP #1). The lines will be ~0.4 miles long each. **(s2213.4) Estimated Cost: $1.7M (AEP)**
- Construct two independent lines to serve the X-5001 substation (DP #2). The lines will be ~0.8 miles long each. **(s2213.5) Estimated Cost: $3.5M (AEP)**

Existing 138kV:



Proposed 138kV:



AEP Transmission Zone M-3 Process
DOE X-350

- At Don Marquis 345 kV, install 3-345kV 4000A 63kA circuit breakers to terminate the OVEC lines from Pierce and Kyger Creek. **(s2213.6) Estimated Cost: $8.8M (AEP)**
- At Kyger Creek station, remove X-530 No.1 Exit and associated equipment. Update remote end relaying towards Don Marquis. **(s2213.7) Estimated Cost: $1.1M (OVEC)**
- At Pierce station, remove X-530 No.1 Exit and associated equipment. Update the remote end relaying towards Don Marquis. **(s2213.8) Estimated Cost: $0.8M (OVEC)**
- Six-wire 71.5 miles of the Pierce-Don Marquis line. Construct 0.13 miles of line to tie into Don Marquis station. **(s2213.9) Estimated Cost: $0.8M (OVEC)**
- Six-wire 50.4 miles of the Kyger Creek-Don Marquis line. Construct 0.5 miles of line to tie into Don Marquis station. **(s2213.10) Estimated Cost: $0.9M (OVEC)**
- Install intertie metering at Don Marquis 345 kV station - OVEC side **(s2213.11) Estimated Cost: $0.8M (OVEC)**

Total Cost AEP: $30.4M

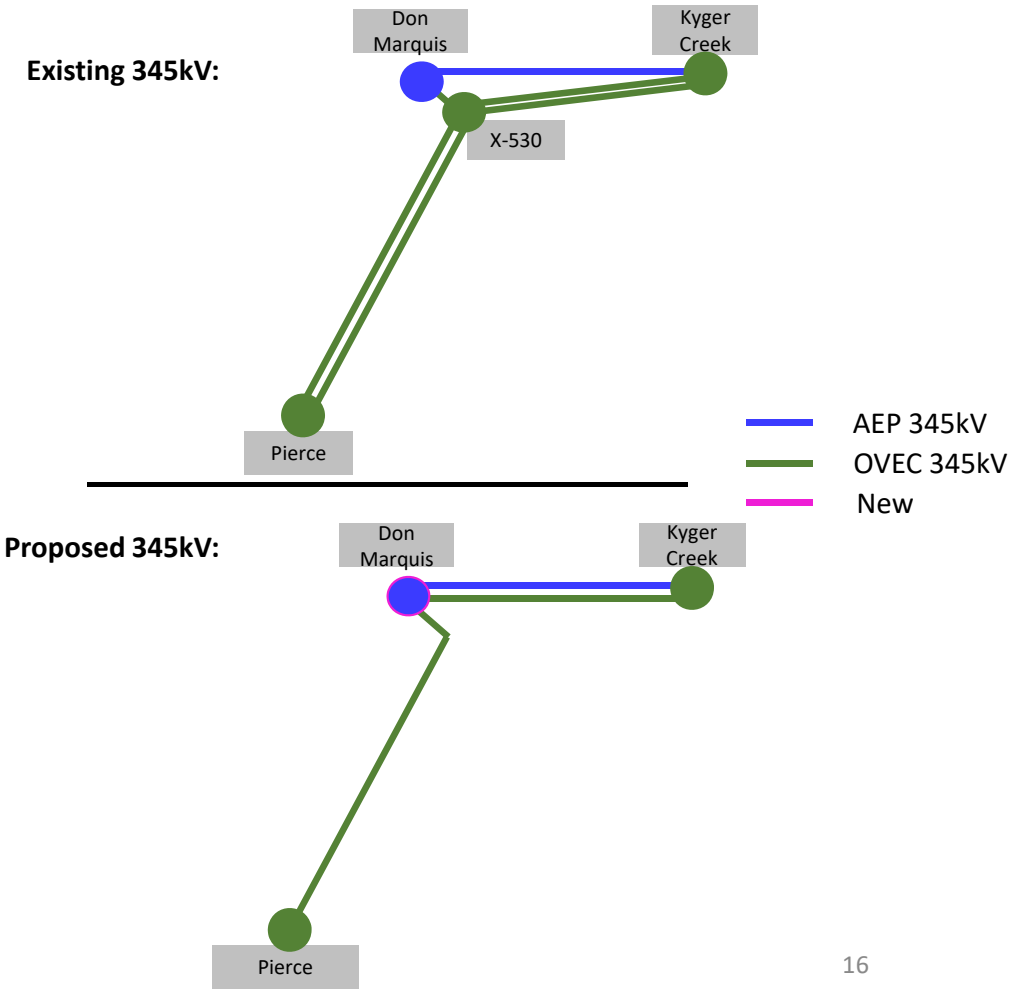
Total Cost OVEC: $4.4M

Projected In-Service: 11/01/2021

Supplemental Project ID: s2213

Project Status: Scoping

Model: N/A



LETTER OF NOTIFICATION FOR THE ARBOLES 138 KV STATION PROJECT

Appendix C Agency Correspondence

In reply, refer to
2021-PIK-52926

November 19, 2021

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

RE: Arboles 138kV Station, Scioto Township, Pike County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on October 21, 2021 regarding the proposed Arboles 138kV Station, Scioto Township, Pike County, 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]).

The following comments pertain to the Cultural Resource Assessment titled *Arboles 138kV Station Pike County, Ohio (BPID P18147007)* by Seth T. Cooper (Weller & Associates, Inc. 2021).

The proposed project is located adjacent to the Portsmouth Gaseous Diffusion Plant. Three (3) archaeological surveys have already taken place within the proposed project area for the Arboles 138kV Station. No archaeological sites were previously identified and our office agrees no additional archaeological survey is needed.

A literature review was completed as part of the investigations. One (1) Determination of Eligibility (DOE) properties associated with the Portsmouth Gaseous Diffusion Plant were identified within the Area of Potential Effects (APE). Based on the information provided, the work will include the construction of a new 138kV station that is proposed on the west side of the Power Plant compound. The new construction will be compatible with surrounding construction and use; therefore, our office concurs that the work as proposed should have no effect on historic properties.

Based on the information provided, we agree that the project as proposed will have no effect on 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: 1090585

Otto, Ben/CIN

From: Ohio, FW3 <ohio@fws.gov>
Sent: Monday, March 22, 2021 10:43 AM
To: Otto, Ben/CIN; Grant S Stuller
Cc: nathan.reardon@dnr.state.oh.us; Parsons, Kate
Subject: [EXTERNAL] AEP - Arboles Station Transmission Lines Project in Scioto Township, Pike County, Ohio

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994

TAILS# 03E15000-2021-TA-1017

Dear Mr. Otto,

The U.S Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found 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 breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet 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, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: Should the proposed project site contain trees ≥3 inches dbh, we recommend avoiding tree removal 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 removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared 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, a summer presence/absence survey may be conducted for Indiana bats. If Indiana bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field 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.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then 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 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. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

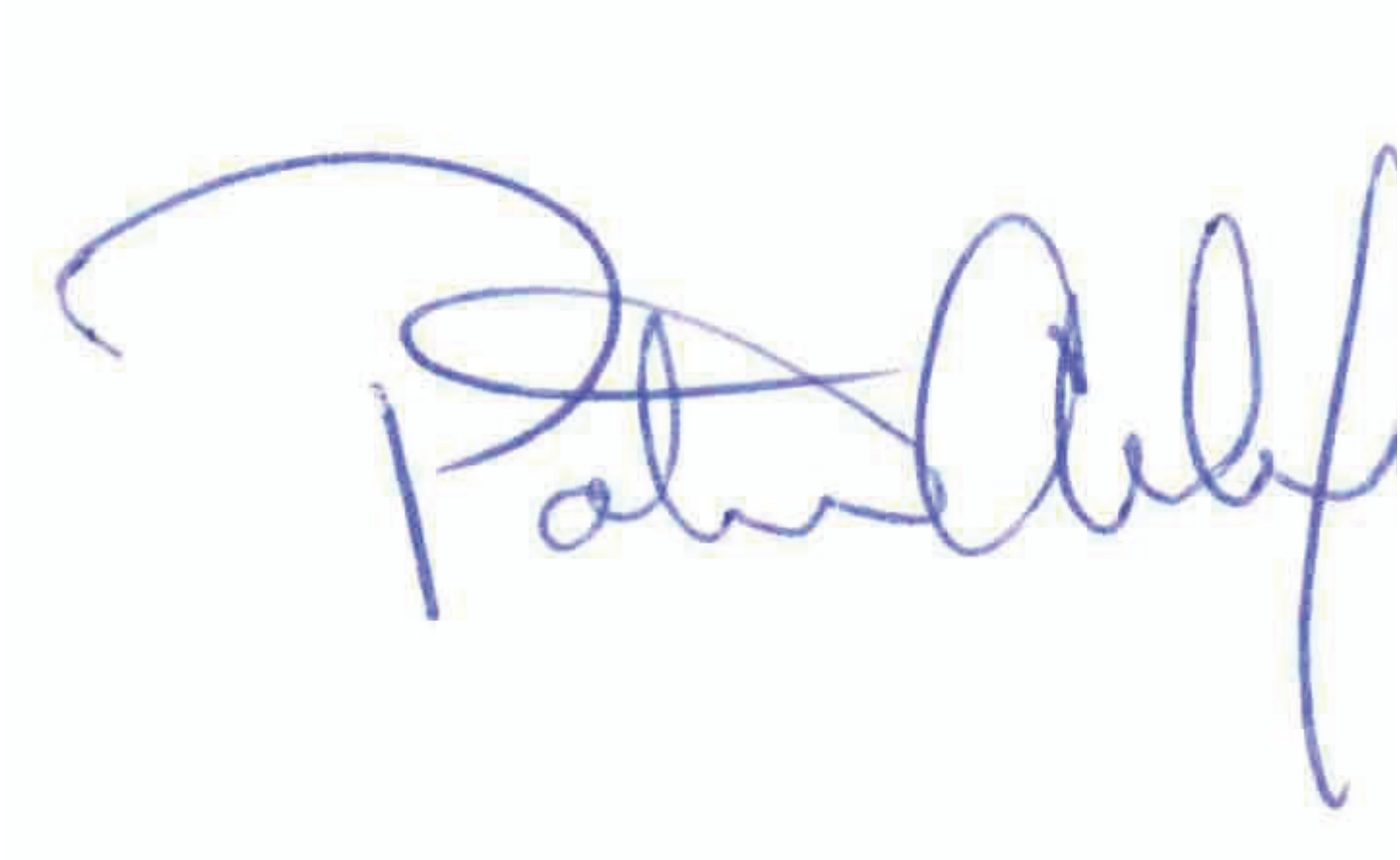
Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army 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. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or 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, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@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
Field Office Supervisor

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

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

May 6, 2021

Ben Otto
2 Crowne Point Court
Suite 100
Cincinnati, Ohio 45241

Re: 21-0342; AEP Arboles Station and Associated Transmission Lines Project

Project: The proposed project includes the construction of five 138 kilovolt (kV) transmission lines, the removal of approximately 0.8-mile of existing 100-foot 138 kV transmission line right-of-way (ROW,) rebuilding approximately 0.4- mile of existing 100-foot 138 kV line ROW, and the construction of the Arboles substation.

Location: The proposed project is located in Scioto Township, Pike County 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 no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. 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.

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.

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 entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH ≥ 20 if possible. If trees are present within the project area, and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting. Mist net and acoustic surveys should be conducted in accordance with the most recent version of the "*OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING*". https://ohiodnr.gov/static/documents/wildlife/wildlife-management/Bat+Survey+Guidelines.pdf

If state listed bats are documented, DOW recommends cutting only occur from October 1 through March 31, however, limited summer tree cutting may be acceptable after consultation with DOW (contact Sarah Stankavich, sarah.stankavich@dnr.state.oh.

The DOW also recommends that a desktop habitat assessment, followed by a field assessment if needed, is conducted to determine if there are potential hibernaculum(a) present within the project area. Information about how to conduct habitat assessments can be found in the current USFWS "*Range-wide Indiana Bat Survey Guidelines*." If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the project area, please send this information to Sarah Stankavich, sarah.stankavich@dnr.state.oh.us for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.
The project is within the range of the following listed mussel species:

Federally Endangered
clubshell (*Pleurobema clava*)
Northern rifffleshell (*Epioblasma torulosa rangiana*)
rayed bean (*Villosa fabalis*)

State Endangered
Ohio pigtoe (*Pleurobema cordatum*)
washboard (*Megalonaias nervosa*)
yellow sandshell (*Lampsilis teres*)

State Threatened
black sandshell (*Ligumia recta*)
fawnsfoot (*Truncilla donaciformis*)
threehorn wartyback (*Obliquaria reflexa*)

Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the following listed fish species:

State Endangered
bigeye shiner (*Notropis boops*)
goldeye (*Hiodon alosoides*),
popeye shiner (*Notropis ariommus*),
shoal chub (*Macrhybopsis hyostoma*),
shortnose gar (*Lepisosteus platostomus*),
shovelnose sturgeon (S*caphirhynchus platorynchus*),

State Threatened
blue sucker (*Cycleptus elongatus*),
channel darter (*Percina copelandi*),
paddlefish (*Polyodon spathula*)
river darter (*Percina shumardi*),
Tippecanoe darter (*Etheostoma tippecanoe*)

The DOW recommends no in-water work in perennial streams from March 15 through 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 timber rattlesnake (*Crotalus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the midland mud salamander (*Pseudotriton montanus diastictus*), a state threatened species. Due to the location, the type of habitat within the project area, and the type of work proposed, 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.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

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.

Mike Pettegrew
Environmental Services Administrator (Acting)

Appendix D Ecological Survey Report

Ecological Survey Report

Arboles Station and Associated Transmission Lines Project

Pike County, Ohio

Prepared for

AEP TRANSMISSION℠

An AEP Company

BOUNDLESS ENERGY℠

December 2021

Jacobs

2 Crowne Point Court, Suite 100
Cincinnati, OH 45241

Contents

Tables

Appendices

1 Introduction

This report summarizes the results of the wetland and waterbody delineation surveys conducted in Pike County by Jacobs Engineering Group, Inc. (Jacobs) for American Electric Power Ohio Transco (AEP), Department of Energy Arboles Station and Transmission Lines Project (Project). AEP is proposing to construct the new Arboles Station along with several transmission line components:

- The construction of five 138 kilovolt (kV) transmission lines totaling 2.4 miles with portions of new 100-foot right-of-way (ROW),
- the removal of approximately 0.8-mile of existing 138 kV transmission line
- rebuilding approximately 0.4-mile of existing 138 kV transmission line
- reconductoring approximately 0.1-mile of existing 138 kV transmission line
- reconductoring six-wire existing double circuit line on two structures

The overall Project alignment is depicted on the Overview Map (Figure 1). Jacobs conducted environmental surveys in January 2021. The environmental survey corridor (ESC) width was 100 feet which included AEP's existing right-of-way (ROW) and the area proposed for the Arboles Station.

This wetland and waterbody delineation report contains the following components:

- **Appendix A, Figure 1** provides an overview map of the ESC overlain on a U.S. Geological Survey (USGS) topographic map.
- **Appendix A, Figures 2.1 to 2.9** show U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) mapped soil units, National Wetlands Inventory (NWI) information, National Hydrology Dataset (NHD) information, and Federal Emergency Management Agency (FEMA) floodplain information. Table 3-1 lists the soils types identified within the ESC.
- **Appendix A, Figures 3.1 to 3.9** provide the location of all features mapped during the delineation by Jacobs biologists within the ESC. This includes all wetlands, data points, waterbodies, and ponds. Tables 4-1, 4-2, 4-3, 4-5, and 4-6 provide feature summary information for all wetlands, streams, and ponds delineated within the ESC.
- **Appendix A, Figure 4.1 to 4.9** provide a Habitat Map for the environmental survey corridor
- U.S. Army Corps of Engineers (USACE) wetland determination field data forms are in **Appendix B**.
- Ohio Rapid Assessment Method for Wetlands (ORAM) two-page forms are in **Appendix C**.
- Primary Headwater Habitat Evaluation Index (HHEI) stream data forms for each stream identified with a drainage area less than 1 square mile are in **Appendix D**.
- Jacobs Open Water/Pond data forms for each open water feature identified within the ESC are in **Appendix E**.
- Representative photographs of wetlands, streams, and ponds within the ESC are in **Appendix F**.
- Documentation for state- and federally listed species is in **Appendix G**.

2 Background Information

The Project is located on Department of Energy (DOE) Portsmouth property located in Pike County, Ohio. The ESC includes a network of new and existing transmission line ROWs generally extending south from Don Marquis Substation (39.0237, -83.0100), north from existing X5001 Station (39.0036, -83.0104), west from Sargents Substation (39.0149, -83.0051), and east from Wakefield Mound Road (39.0178, -83.0239). The ESC is approximately 3.7 miles long, 100 feet wide, and totals approximately 74 acres (Figure 1).

Review of the USGS Piketon, Ohio 7.5-minute topographic map indicates that unnamed tributaries to Little Beaver Creek, Big Beaver Creek, and the Scioto River drain the ESC. The Project area is generally flat at around 700 feet above sea level, with a hill slope in the northern portion that reaches 800 feet above sea level and a stream valley near the center that drops to 615 feet above sea level (Figure 1).

Land use and natural habitat observed within the ESC (Figure 4, Habitat Map) includes existing roadway and railroad, substations, old field/maintained ROW, commercial lawn, upland forest, upland scrub shrub, open water, and palustrine emergent (PEM) wetland.

2.1 Annual Precipitation

Precipitation history in the Agricultural Applied Climate Information System (AgACIS) was reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. Waverly, Ohio contains the nearest weather station with both historical and recent precipitation records. Precipitation recorded in the Project area indicated normal conditions in the months leading up to and during the January 2021 survey (Table 2-1). This was taken into consideration when conducting the wetland delineation.

TABLE 2-1: Recent Precipitation Data

Department of Energy Arboles Station and Transmission Lines Project				
Precipitation Data[1]	**November 2020**	**December 2020**	**January 2021**	**Total**
Normal Monthly Precipitation	1.85 - 3.53	2.01 - 3.62	1.43 - 3.15	5.29 - 10.30
Actual Monthly Precipitation	2.00	2.35	2.51	6.86
Monthly Climatic Condition	Normal	Normal	Normal	Normal

Source: NOAA, 2020

[1]Displayed in inches

2.2 Drainage Basins

The ESC crosses the Lower Scioto 8-digit Hydrologic Unit Code (HUC) River Basin (05060002) and two 12-digit HUCs, as outlined in Table 2-2 (USGS, 2020).

TABLE 2-2: HUCs Crossed by the Project

Department of Energy Arboles Station and Transmission Lines Project	
HUC 12-Digit Code	**HUC 12-Digit Name**
Little Beaver Creek-Big Beaver Creek	050600021303
Big Run-Scioto River	050600021602
Source: USGS, 2020	

2.3 Nationwide Permits- Ohio 401 Water Quality Certification

The USACE issued its final rule on January 13, 2021, modifying and reissuing 12 existing nationwide permits (NWPs) and issuing four entirely new NWPs, which went into effect on March 15, 2021 (Schirra, 2021). The USACE determined that the Ohio Environmental Protection Agency waived its certification for the 2021 NWPs, and therefore there is no corresponding 401 WQC permitting obligation for the 16 NWPs, including NWP 57 – Overhead Utilities. The status of Ohio's 401 WQC requirements for specific NWPs may be subject to change and should be reviewed for permitting purposes as needed.

3 Wetland and Waterbody Delineation

3.1 Desktop Review

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

- Aerial photo-based maps (ArcGIS Online "World Imagery" Basemap [AGOL, 2019a])
- USGS topographic maps (ArcGIS Online "USA Topo" Basemap [AGOL, 2019b])
- NRCS Web Soil Survey (NRCS, 2019)
- NWI maps (USFWS, 2021a)
- National Hydrography Dataset (NHD) (USGS, 2019)

According to the NRCS soil survey of Pike County (NRCS, 2019), nine soil map units are crossed by the ESC, all of which are listed as non-hydric (Figures 2.1 to 2.9; Table 3-1). Generally, hydric soils are those soils that indicate through their color and structure that they have experienced dominantly reducing (i.e. oxygen poor) conditions. Oxygen-poor conditions result from inundation and/or saturation by water. Partially hydric soils have both hydric and non-hydric soil components identified in the mapped soil unit.

TABLE 3-1: Mapped Soil Units

Department of Energy Arboles Station and Transmission Lines Project			
Symbol	**Soil Description**	**Hydric Classification**	**Acreage within ESC**
CoB	Coolville silt loam, 1 to 8 percent slopes	Non-hydric	0.43
CpC	Coolville-Blairton association, rolling	Non-hydric	0.71
FoB	Fox loam, 2 to 6 percent slopes	Non-hydric	0.03
Omu1B1	Omulga silt loam, 2 to 6 percent slopes	Non-hydric	12.74
PrC	Princeton fine sandy loam, 8 to 15 percent slopes	Non-hydric	4.71
PrD	Princeton fine sandy loam, 15 to 30 percent slopes	Non-hydric	2.04
RdD	Rarden silt loam, 15 to 25 percent slopes	Non-hydric	1.43
SpF	Shelocta-Latham association, steep	Non-hydric	4.62
UoA	Urbanland-Omulga complex, 0 to 6 percent slopes	Non-hydric	40.24

NWI data were obtained from the USFWS for review of potential wetlands that may occur within the ESC. The NWI data (USFWS, 2021a) identify the type of wetland or open water present at a location using the USFWS classification system (Cowardin et al., 1979). The presence of an NWI feature is not a definitive indicator that a wetland or waterbody is present. The information on NWI maps is obtained largely from aerial interpretation, may be outdated, and is only sporadically field-checked. Additional detail regarding the mapped NWI wetlands within the ESC is provided in Table 4-4.

The ESC does not cross any FEMA-mapped 100-year floodplains or floodways (FEMA, 2020).

3.2 Field Survey Methodology

On January 20-22, 2021, Jacobs biologists surveyed the ESC by walking the corridor and evaluating for wetlands and other waterbodies. The boundaries of each wetland and waterbody within the ESC were

delineated and recorded using handheld global positioning system (GPS) units. For streams identified within the Project area, the ordinary high-water mark (OHWM) was used as the jurisdictional boundary.

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

3.2.1 Wetland Delineation

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

Wetland quality was evaluated using the OEPA Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack, 2001). Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000). Jacobs commonly assesses each Cowardin component of a wetland complex with a separate USACE wetland determination form. However, the ORAM evaluates the larger wetland complex as a unit and as a result each wetland component within a complex will receive the same ORAM score.

3.2.2 Stream Assessment

Jurisdictional streams were identified as those waters that possessed a continuously defined bed and bank, OHWM indicators, and lacked a dominance of upland vegetation in the channel. Per USACE guidance, the OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (USACE and USEPA, 2020). Channels that parallel a roadway or railroad were identified as upland drainage features and were not considered to be jurisdictional unless they had an identifiable OHWM, were identified on the USGS topographic map, or represented a presumed relocation of a natural channel.

During the field survey, functional stream assessments were conducted using the methods described in the OEPA's Methods for Assessing Habitat in Flowing Waters: Using OEPA's *Qualitative Habitat Evaluation Index* (OEPA, 2006) and in the OEPA's Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (OEPA, 2018). The Qualitative Habitat Evaluation Index (QHEI), is used to characterize larger streams (drainage areas greater than 1 square mile), while the Primary Headwater Habitat Evaluation Index (HHEI) is appropriate for first-order and second-order headwater streams (drainage areas less than 1 square mile).

4 Field Survey Results

Jacobs' biologists identified a total of eight wetlands, 16 streams, and one pond within the ESC. The features identified within the ESC are displayed on the Delineated Features Map (Figures 3.1 to 3.9). Jacobs defaults to the USACE and OEPA for the final determination of hydrologic connectivity and jurisdiction.

4.1 Wetlands

Eight wetlands, totaling 0.35 acres, ranging in size from less than 0.01 to 0.12 acre, were delineated within the ESC. The reported wetland acreage only corresponds to areas delineated within the ESC as some wetlands extended beyond the survey boundary. All eight wetlands were identified as PEM wetlands. Summary information for each delineated wetland within the ESC is provided in Table 4-1. Completed USACE wetland and upland forms are provided in Appendix B. Representative photographs were taken of each wetland during the field survey and are provided in Appendix E.

Table 4-1: Delineated Wetland Table

Department of Energy Arboles Station and Transmission Lines Project						
Wetland ID	**Location**		**Habitat Type[1]**	**Area (ac)[2]**	**ORAM Score, Category**	**Preliminary Jurisdicational Status**
	Latitude	**Longitude**				
Wetland AS-001	39.02384	-83.01100	PEM	<0.01	16, Category 1	Jurisdictional
Wetland AS-002	39.01650	-83.01733	PEM	0.02	21, Category 1	Jurisdictional
Wetland AS-003	39.01657	-83.01404	PEM	0.04	29, Category 1	Jurisdictional
Wetland AS-004	39.01615	-83.00785	PEM	0.02	21, Category 1	Jurisdictional
Wetland AS-005	39.01482	-83.00542	PEM	0.12	15, Category 1	Non-Jurisdictional (Isolated)
Wetland AS-006	39.01316	-83.01064	PEM	0.03	32, Category 2	Jurisdictional
Wetland AS-007	39.01080	-83.01233	PEM	0.05	22, Category 1	Jurisdictional
Wetland AS-008	39.00831	-83.01227	PEM	0.07	27, Category 1	Jurisdictional
Total: 8			**Total Wetland Acreage**	**0.35**		

[1]Cowardin et al. 1979.
[2]This acreage only corresponds to the area delineated within the environmental survey corridor.

4.1.1 Wetland ORAM Results

A total of seven Category 1 wetlands and one Category 2 wetland was identified within the ESC. No Category 3 wetlands were identified within the ESC. Table 4-1.1 provides summary information regarding wetlands identified within the ESC; the ORAM forms are included in Appendix B.

The seven Category 1 PEM wetlands were classified as Category 1 based on ORAM scores ranging from 15 to 29. Generally, these wetlands scored low due to a variety of factors such as small size, narrow buffers with moderately high intensity of surrounding land use, weak hydrology with modifications to hydrology regime and no connectivity, substrate disturbance and habitat alteration, poor to fair habitat development, weak vegetation diversity, and low to no interspersion.

The single Category 2 PEM wetland had an ORAM score of 32. Compared to the Category 1 wetlands it was slightly larger and similar surrounding land use, stronger hydrology, and greater habitat development.

No Category 3 wetlands were identified within the ESC.

TABLE 4-1.1: Wetland Summary Table

Department of Energy Arboles Station and Transmission Lines Project

Wetland Type	ORAM Category			Number of Wetlands	Acreage within ESC[1]
	Category 1	Category 2	Category 3		
PEM	7	1	0	8	0.35
PSS	0	0	0	0	0
PFO	0	0	0	0	0
Totals	7	1	0	8	0.35

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

4.1.2 NWI Field Verification

The NWI data indicate that there are mapped riverine systems present within the ESC (Figures 2.1 to 2.9; USFWS, 2021a). During Jacobs' field survey the two mapped NWI areas were identied as streams(Table 4-1.2).

TABLE 4-1.2: Mapped National Wetland Inventory Features

Department of Energy Arboles Station and Transmission Lines Project

Wetland Classification Code[1]	NWI Description	Figure 3	Related Field Inventoried Resource	Comments
R4SBC	Riverine intermittent, streambed, seasonally flooded	3.3	Stream AS-005	NWI continues north and south of ESC. Stream channel forms within ESC; north of stream is undefined upland but sourced from a pond north of ESC
R4SBC	Riverine intermittent, streambed, seasonally flooded	3.7	Stream AS-014	NWI continues west of ESC. Stream begins at culvert within ESC

[1]Cowardin et al., 1979.

4.2 Streams

A total of 16 streams, totaling 3,155 linear feet were identified within the ESC. Of the 16 streams, seven were identified as ephemeral streams, eight were intermittent streams, and one was a perennial stream. All streams were assessed using the HHEI methodology (drainage area less than 1 mi^2). Table 4-2 provides detailed information on the delineated streams.

TABLE 4-2: Delineated Stream Table

Department of Energy Arboles Station and Transmission Lines Project

Stream ID	Location		Flow Regime[1]	Linear Feet[2]	Average OHWM Width (Feet)	Average TOB Width (Feet)	HHEI Score	Class/Designation
	Latitude	Longitude						
Stream AS-001	39.02317	-83.01186	Ephemeral	339	3	4	17	Modified Ephemeral
Stream AS-002	39.02161	-83.01309	Ephemeral	128	3	4	27	Ephemeral
Stream AS-003	39.02101	-83.01354	Intermittent	290	2	6	39	Modified Small Drainage Warmwater
Stream AS-004	39.02045	-83.01402	Intermittent	256	2	3	17	Modified Ephemeral
Stream AS-005	39.01772	-83.02041	Intermittent	76	1	2	46	Modified Small Drainage Warmwater
Stream AS-006	39.01749	-83.01778	Ephemeral	184	1	2	16	Ephemeral
Stream AS-007	39.01600	-83.01359	Ephemeral	48	1	2	17	Modified Ephemeral

TABLE 4-2: Delineated Stream Table

Department of Energy Arboles Station and Transmission Lines Project

Stream ID	Location		Flow Regime[1]	Linear Feet[2]	Average OHWM Width (Feet)	Average TOB Width (Feet)	HHEI Score	Class/Designation
	Latitude	Longitude						
Stream AS-008	39.01610	-83.01006	Ephemeral	137	1	5	20	Ephemeral
Stream AS-009	39.01608	-83.00927	Intermittent	320	3	4	39	Modified Small Drainage Warmwater
Stream AS-010	39.01603	-83.00867	Ephemeral	184	2	4	28	Ephemeral
Stream AS-011	39.01530	-83.00950	Intermittent	57	5	6	54	Modified Small Drainage Warmwater
Stream AS-012	39.01398	-83.01209	Ephemeral	361	4	8	71	Spring Water
Stream AS-013	39.01358	-83.01232	Perennial	212	15	20	77	Spring Water
Stream AS-014	39.01135	-83.01220	Intermittent	328	8	12	76	Spring Water
Stream AS-015	39.01108	-83.01190	Intermittent	38	4	5	61	Spring Water
Stream AS-016	39.00898	-83.01234	Intermittent	197	2	3	29	Modified Ephemeral
Total: 16			**Total Stream Length**	**3,155**				

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

[2]Stream length within the environmental survey area.

4.2.1 HHEI Results

Sixteen (16) headwater streams, totaling 3,155 linear feet within the ESC, were evaluated using the HHEI methodology. Of the 16 streams, four were classified as ephemeral streams, four as modified ephemeral streams, four as modified small drainage warmwater streams, and four as spring water streams. Table 4-2.1 provides a summary of the HHEI results for streams identified within the ESC, and completed HHEI forms are provided in Appendix C. Representative photographs (upstream, downstream, substrate) of the streams were taken during the field survey and are provided in Appendix E.

TABLE 4-2.1: HHEI Summary Table

Department of Energy Arboles Station and Transmission Lines Project

Flow Regime	HHEI Class						Number of Streams	Length (feet) within ESC
	Ephemeral	Modified Ephemeral	Small Drainage Warmwater	Modified Small Drainage Warmwater	Spring Water	Rheocrene		
Ephemeral	4	2	0	0	1	0	7	1,381
Intermittent	0	2	0	4	2	0	8	1,562
Perennial	0	0	0	0	1	0	1	212
Total	**4**	**4**	**0**	**4**	**4**	**0**	**16**	**3,155**

4.3 Ponds/Open Water

One pond with an acreage of 0.21 acres in the ESC was identified. Table 4-3 provides detailed information on the delineated pond. Jacobs' Pond/Open Water forms are provided in Appendix D and representative photographs are provided in Appendix E.

TABLE 4-3: Delineated Pond Table

Department of Energy Arboles Station and Transmission Lines Project				
Pond ID	**Location**		**Acreage within ESC**	**Prelminary Jurisdictional Status**
	Latitude	**Longitude**		
Pond AS-001	39.01369	-83.01029	0.21	Jurisdictional

4.4 Land Use/Habitat

In addition to the delineated wetland and waterbody features, Jacobs observed the following land use types and natural habitat within the ESC: existing roadway/railroad, gravel lot/substation pad, commercial lawn, herbaceous maintained ROW, scrub/shrub maintained ROW, upland forested, and open water. Based on Jacobs' observations, the primary land use the ESC crosses is old field/herbaceous maintained ROW. The land use types identified along with acreages within the ESC are defined in Table 4-4 and shown on Figures 4.1 to 4.9.

TABLE 4-4: Land Use and Natural Habitat Summary

Department of Energy Arboles Station and Transmission Lines Project			
Land Use and Natural Habitat	**Land Use Description**	**Approximate Acreage Within the ESC**	**Approximate Percentage Within the ESC**
Existing Roadway/Railroad	Areas where existing public or private dirt, gravel, or paved roads are present, as well as railroad infrastructure.	7.6	9%
Gravel Lot	Areas covered by gravel where vegetation is suppressed by the presence of the gravel cover; often used for commercial/industrial/residential purposes	1.3	1.5%
Gravel Substation Pad	Areas that include an existing substation and the surrounding gravel pad.	2.2	2.6%
Commercial Lawn	Areas where commercial properties are present, including lawns and other landscaped areas associated with the commercial property. These areas contain frequently mowed grasses and forbs.	19.7	23.4%
Old Field/Herbaceous Maintained ROW	Areas that are regularly maintained and dominated by primarily upland herbaceous vegetation, such as smooth brome (*Bromus inermis*), tall fescue (*Schedonorus arundinaceus*), Queen Anne's lace (*Daucus carota*), tall goldenrod (*Solidago altissima*), common mullein (*Verbascum thapsus*), and other upland herbaceous vegetation. This community may have some wetland vegetation and/or upland shrub vegetation present to a lesser extent.	25.8	42.6%
Upland Scrub/Shrub Maintained ROW	Areas that are regularly maintained and dominated by primarily upland shrub vegetation, such as sumacs (*Rhus* spp.), raspberries (*Rubus* spp.), multiflora rose (*Rosa multiflora*), hawthorns (*Crataegus* spp.), saplings of trees identified in upland forested species description, and other upland shrub species.	7.1	8.4%
Upland Forested	Areas that are dominated by primarily upland forested vegetation, such as maples (*Acer* spp.), oaks (*Quercus* spp.), shagbark hickory (*Carya ovata*), black cherry (*Prunus serotina*), black walnut (*Juglans nigra*), and other upland tree species. This community may have some wetland vegetation and/or upland vegetation in the shrub or herbaceous strata, but the predominant vegetation is comprised of upland tree species.	10.2	12%

TABLE 4-4: Land Use and Natural Habitat Summary

Department of Energy Arboles Station and Transmission Lines Project			
Land Use and Natural Habitat	**Land Use Description**	**Approximate Acreage Within the ESC**	**Approximate Percentage Within the ESC**
Open Water	Impounded open water features typically used for stormwater retention, cattle ponds, aesthetic or recreational purposes, or a combination of those purposes.	0.4	0.4%
	Totals:	74.3	100%

5 Protected Species

Jacobs reviewed the USFWS Ohio Ecological Services Office website (USFWS, 2018) for information concerning which federally listed species were known to occur, or to potentially occur, in Pike County, Ohio. In addition, Jacobs was provided with Ohio Natural Heritage Database data from the Ohio Department of Natural Resources (ODNR) Division of Wildlife (DOW), on known occurrences of federally listed and state-listed species within a one-mile radius of the Project area.

5.1 Federal and State Agency Coordination Summary

Table 5-1 includes the federally listed species identified by the USFWS as occurring or potentially occurring in Pike County, Ohio along with other habitat observations and information on recorded locations, if applicable. Table 5-1 also outlines state-listed species identified by the ODNR-DOW (ODNR, 2021) as being located within a one-mile radius of the Project area. Species-specific surveys were not conducted for the federally listed or state-listed species.

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment
Department of Energy Arboles Station and Transmission Lines Project

Common Name (Scientific Name)	Federal Status	State Status	General Habitat Notes	Recorded Location within Project Vicinity	Potential Habitat in Project Area	ODNR Recommendation
Indiana bat (*Myotis sodalis*)	Endangered	Endangered	Hibernates in caves and mines; Maternity and foraging habitat = small stream corridors with well-developed riparian woods and upland forests.	No records returned	Yes	October 1 through March 31 tree clearing and desktop habitat assessment for potential hibernaculum(a).
Northern long-eared bat *(Myotis septentrionalis*)	Threatened	Threatened	Hibernates in caves and mines; swarms in surrounding wooded areas in autumn. During late spring and summer, roosts and forages in upland forests.	No records returned	Yes	October 1 through March 31 tree clearing and desktop habitat assessment for potential hibernaculum(a).
Little brown bat (*Myotis lucifugus*)	NA	Endangered	Hibernates in caves and mines; swarms in surrounding wooded areas in autumn. During late spring and summer, roosts and forages in upland forests.	No records returned	Yes	October 1 through March 31 tree clearing and desktop habitat assessment for potential hibernaculum(a).

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment
Department of Energy Arboles Station and Transmission Lines Project

Common Name (Scientific Name)	Federal Status	State Status	General Habitat Notes	Recorded Location within Project Vicinity	Potential Habitat in Project Area	ODNR Recommendation
Tricolored bat (*Perimyotis subflavus*)	NA	Endangered	Hibernates in caves and mines; swarms in surrounding wooded areas in autumn. During late spring and summer, roosts and forages in upland forests.	No records returned	Yes	October 1 through March 31 tree clearing and desktop habitat assessment for potential hibernaculum(a).
Several Mussel Species	NA	Endangered, Threatened	Streams	No records returned	Not likely	Not likely to impact this species.
Several Fish Species	NA	Endangered, Threatened	Perennial Streams	No records returned	Not likely	No in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat.
Timber rattlesnake (*Crotalus horridus*)	Species of Concern	Endangered	Woodland species. In addition to using wooded areas, also utilizes sunlit gaps in the canopy for basking and deep rock crevices (den sites) for overwintering.	No records returned	Not likely	Not likely to impact this species.
Eastern spadefoot toad *(Scaphiopus holbrookii)*	NA	Endangered	Found in areas of sandy soils associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions.	No records returned	Not Likely	Not likely to impact this species.
Midland mud salamander (*Pseudotriton montanus diastictus*)	NA	Threatened	This species is typically found in streams, seeps and swamps and underneath logs, rocks and leaves	No records returned	Not likely	Not likely to impact this species.

5.2 Protected Species Summary

Coordination with ODNR-DOW was initiated to obtain Environmental Review and Ohio Natural Heritage Database records within a 1-mile buffer area around the project (ODNR-DOW, 2021). Current information on the species provided through USFWS (USFWS, 2021b) and the ODNR-DOW Ohio Natural Heritage Database is provided in Table 5-1 (above).

A consultation request was submitted to the USFWS on March 10, 2021 and their response was received on March 22, 2021. The USFWS confirmed that the project area lies within the range of two federally listed species, Indiana bat and northern long-eared bat (USFWS, 2021b; Table 5-1).

A consultation request was submitted to the ODNR on March 10, 2021 and their response was received on May 6, 2021. The Project area is within range of four state-listed bat species. If trees must be cut, ODNR-DOW recommends only cutting from October 1 to March 31 and conserving trees with loose, shaggy bark; with crevices, holes, or cavities; or with a diameter at breast height (DBH) greater than or equal to 20 inches. If trees must be cut during summer months, ODNR-DOW recommends a mist net survey or acoustic survey to be conducted from June 1 to August 15, prior to any cutting. ODNR also recommended that a desktop habitat assessment, followed by a field assessment if needed, be conducted to determine if there are potential hibernaculum(a) present within the Project area.

During the field survey conducted by Jacobs in January 2021, no evidence of potential hibernaculum consisting of caves, rock outcrops, mines, cliffs, or karst features were observed. In addition to the field survey, USFWS and ODNR did not identify any known bat hibernaculum or records of federal or state listed bats within a one-mile radius of the Project.

Jacobs' biologists also followed methodology provided in Appendix H of the USFWS "*Range-wide Indiana Bat Survey Guidelines*" document to conduct a desktop hibernaculum assessment. Review of the USGS Piketon, Ohio 7.5-minute topographic map identified several mine features within 3 miles of the Project area that are labeled as sand and gravel pits. According the ODNR Division of Mineral Resources data, several active and inactive surface mines are located within 3 miles of the Project area. These mines were identified as sand and gravel surface mines located west of U.S. Route 23 near the Scioto River. No active surface mines are located within 0.25 miles of the Project. One inactive surface mine (G & M Gravel & Stone Co., Permit ID IM-0688) is located approximately 0.15 miles from the western most portion of the Project. According to the ODNR Mines of Ohio Viewer, this inactive surface mine has a Mine Operation Status of "Released" and a Date of Map of 7/29/1982. Aerial imagery indicates that the location of this former surface mine currently consists of active agricultural row crop and old field land use types. Due to the current land use (old field and agricultural land) of this inactive surface mine, it is unlikely that a potential hibernaculum exists at this site. Based on the desktop habitat review, it does not appear likely that potential hibernaculum exists within 0.25-mile of the Project area.

According to ODNR, the Project must not have an impact on freshwater native mussels within the Project area and per the Ohio Mussel Survey Protocol (ODNR-DOW, 2020), all Group 2, 3, and 4 streams require mussel surveys. No in-stream work is currently proposed during construction activities and will not directly impact streams crossed by the Project area. Therefore, mussel surveys will not likely be required. The ODNR-DOW recommends no in-water work in any perennial stream from April 15 through June 30 to reduce impacts to indigenous species and their habitat. Because no in-water work is proposed in any perennial stream within the Project area, the Project is not likely to impact threatened or endangered aquatic species.

The Project is within the range of timber rattlesnake, eastern spadefoot toad, and midland mud salamander. ODNR states that due to the location, type of habitat within the project area, and type of work proposed, the Project is not likely to impact these species.

6 Conclusion

This report presents the background research, field surveys results, and threatened and endangered species consultation conducted for the Arboles Station and Associated Transmission Lines Project located in Pike County, Ohio.

During the January 2021 field survey, eight wetlands, 16 streams, and one pond were delineated within the ESC. The eight wetlands, totaling 0.35 acres within the ESC, were all PEM wetlands. Of the eight wetlands, seven were identified as Category 1 wetlands and one was a Category 2 wetland. No Category 3 wetlands were identified within the ESC.

The 16 streams, totaling 3,155 linear feet, identified within the ESC include seven ephemeral streams, eight intermittent streams, and one perennial stream. All streams were were assessed using the HHEI methodology (drainage area less than 1 mi^2). While the jurisdictional status of these identified features is provided with tables of this report, the USACE and OEPA will provide the final determination of hydrologic connectivity and jurisdiction. Coordination with the USACE and OEPA is recommended prior to the submittal of any permit or construction activities, dependent on the planned impacts to wetlands and waterbodies.

The results of the environmental survey described in this report conducted by Jacobs are limited to what was identified within the ESC, as depicted in Figures 3.1 to 3.9. The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance for construction; therefore, lengths and acreages listed in this report may likely not constitute the actual impacts of the Project at the time of construction. If permits are determined to be necessary, actual impacted lengths and/or acreages will be submitted in subsequent permit applications.

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

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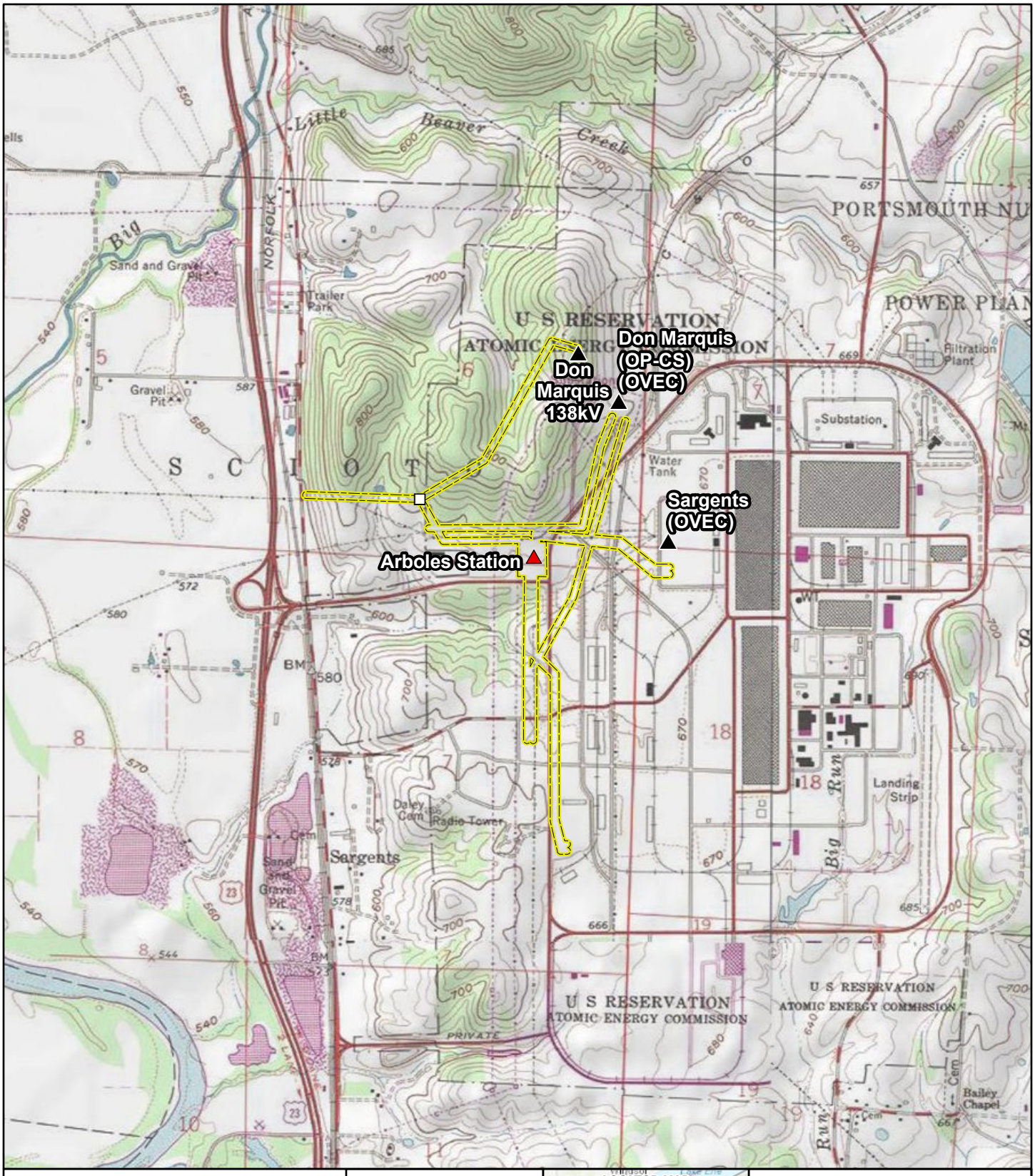
Appendix A
Figures



Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor

BASEMAP SOURCE:

Esri World Topographic Map, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, Copyright:© 2013 National Geographic Society, i-cubed

Piketon Quadrangle

Coordinate System: StatePlane Ohio South FIPS 3402 ft
Datum: NAD 1983
Scale: 1:24,000

October 13, 2021

LOCATOR MAP

Figure 1
Overview Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 800 1,600 2,400 3,200
Feet

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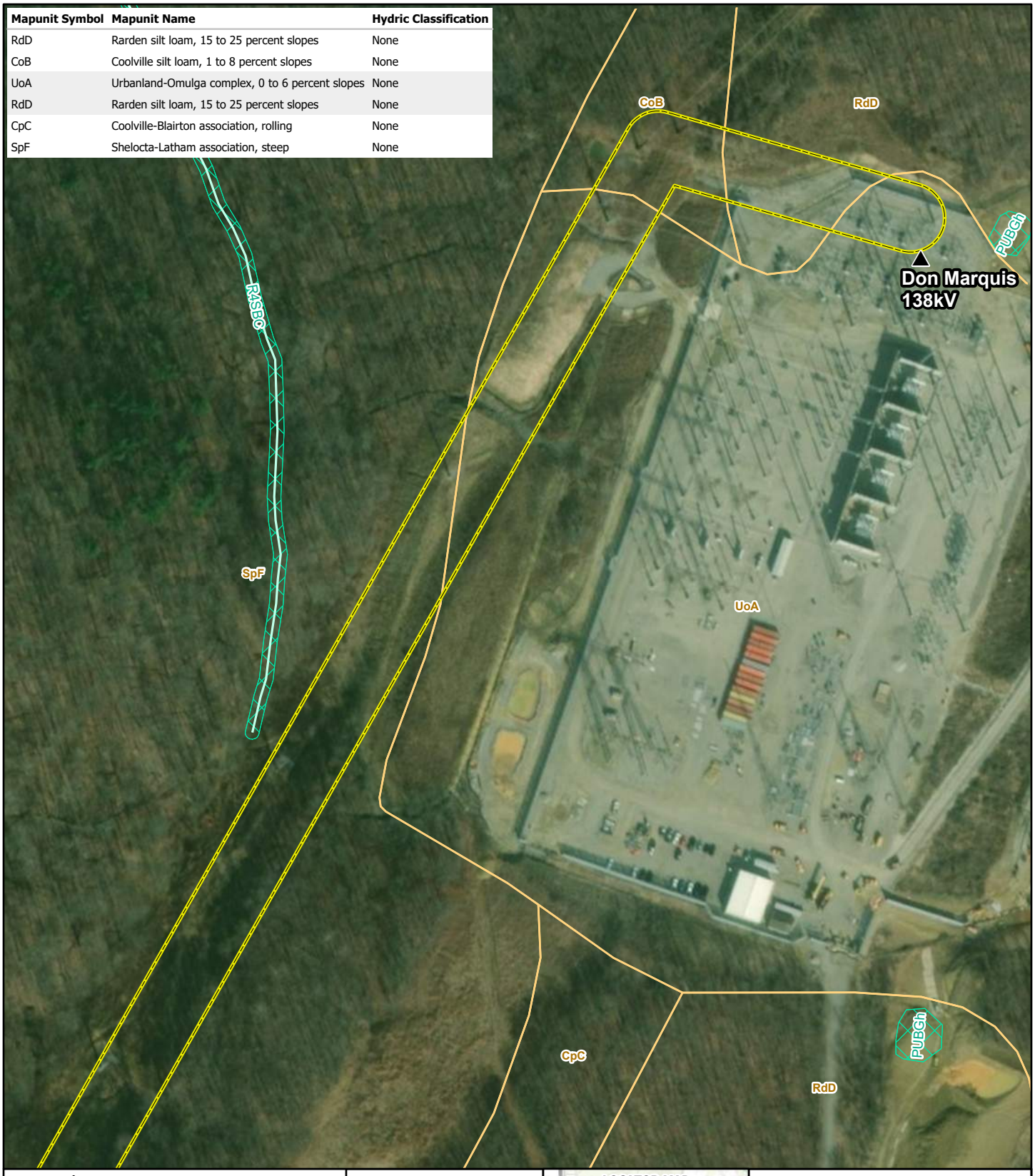
Mapunit Symbol	Mapunit Name	Hydric Classification
RdD	Rarden silt loam, 15 to 25 percent slopes	None
CoB	Coolville silt loam, 1 to 8 percent slopes	None
UoA	Urbanland-Omulga complex, 0 to 6 percent slopes	None
RdD	Rarden silt loam, 15 to 25 percent slopes	None
CpC	Coolville-Blairton association, rolling	None
SpF	Shelocta-Latham association, steep	None



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Legend

- Proposed Station
- Existing Station
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- Environmental Survey Corridor

Note: No 100-year floodplain present in project area.

BASEMAP SOURCE:
GeoEye, Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/ NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

March 04, 2021

LOCATOR MAP

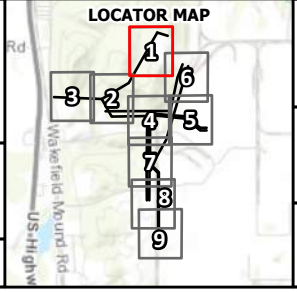


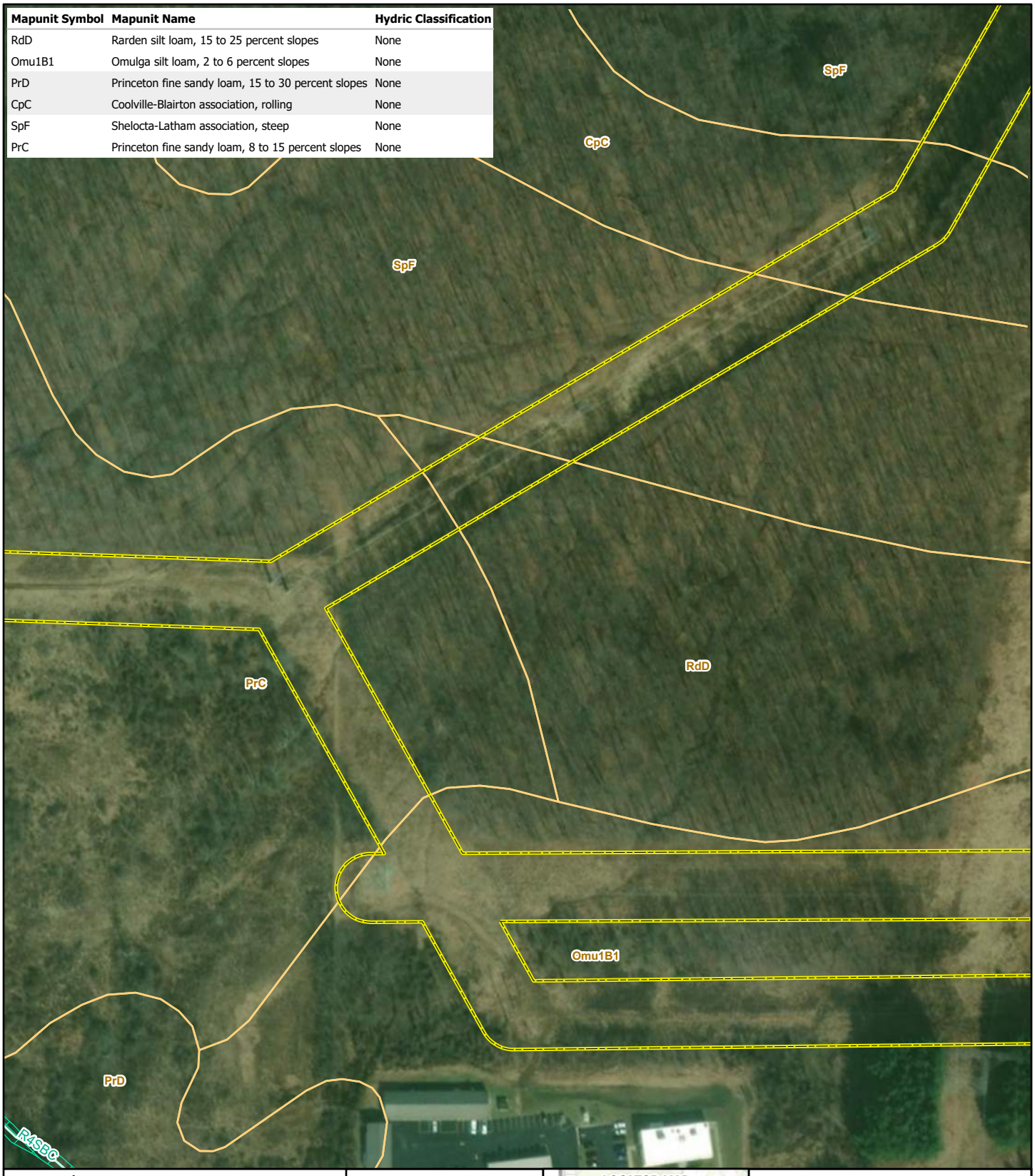
Figure 2.1
Soil, NHD, NWI Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

Mapunit Symbol	Mapunit Name	Hydric Classification
RdD	Rarden silt loam, 15 to 25 percent slopes	None
Omu1B1	Omulga silt loam, 2 to 6 percent slopes	None
PrD	Princeton fine sandy loam, 15 to 30 percent slopes	None
CpC	Coolville-Blairton association, rolling	None
SpF	Shelocta-Latham association, steep	None
PrC	Princeton fine sandy loam, 8 to 15 percent slopes	None



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Legend

- Proposed Station
- Existing Station
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- Environmental Survey Corridor

Note: No 100-year floodplain present in project area.

BASEMAP SOURCE:
VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, USDA FSA, GeoEye, Maxar

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

March 04, 2021

LOCATOR MAP

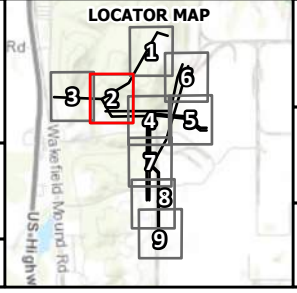


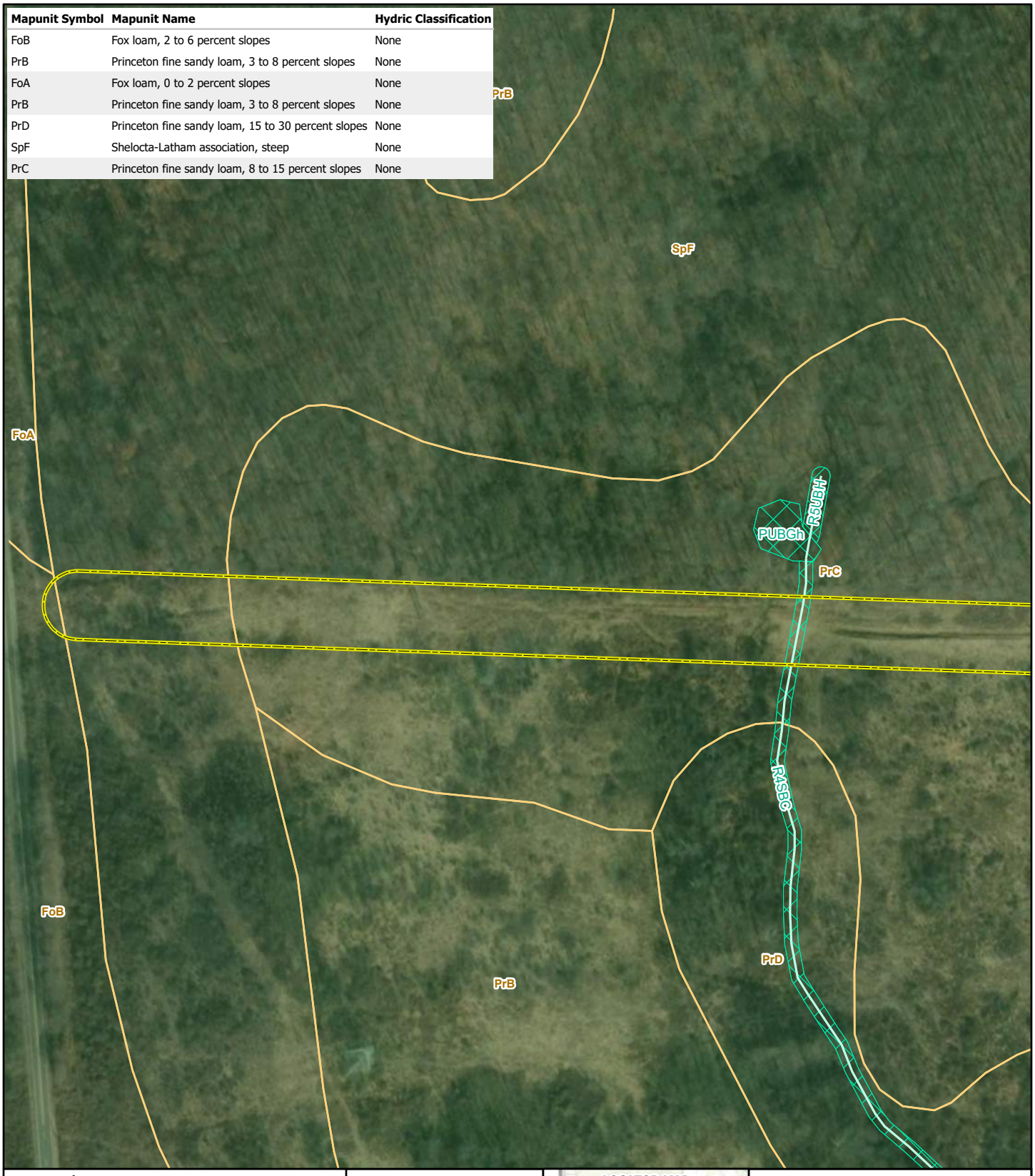
Figure 2.2
Soil, NHD, NWI Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

Mapunit Symbol	Mapunit Name	Hydric Classification
FoB	Fox loam, 2 to 6 percent slopes	None
PrB	Princeton fine sandy loam, 3 to 8 percent slopes	None
FoA	Fox loam, 0 to 2 percent slopes	None
PrB	Princeton fine sandy loam, 3 to 8 percent slopes	None
PrD	Princeton fine sandy loam, 15 to 30 percent slopes	None
SpF	Shelocta-Latham association, steep	None
PrC	Princeton fine sandy loam, 8 to 15 percent slopes	None



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Legend

- Proposed Station
- Existing Station
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- Environmental Survey Corridor

Note: No 100-year floodplain present in project area.

BASEMAP SOURCE:
VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, USDA FSA, GeoEye, Maxar

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

March 04, 2021

LOCATOR MAP

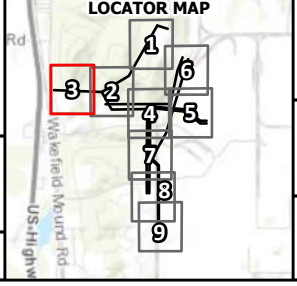


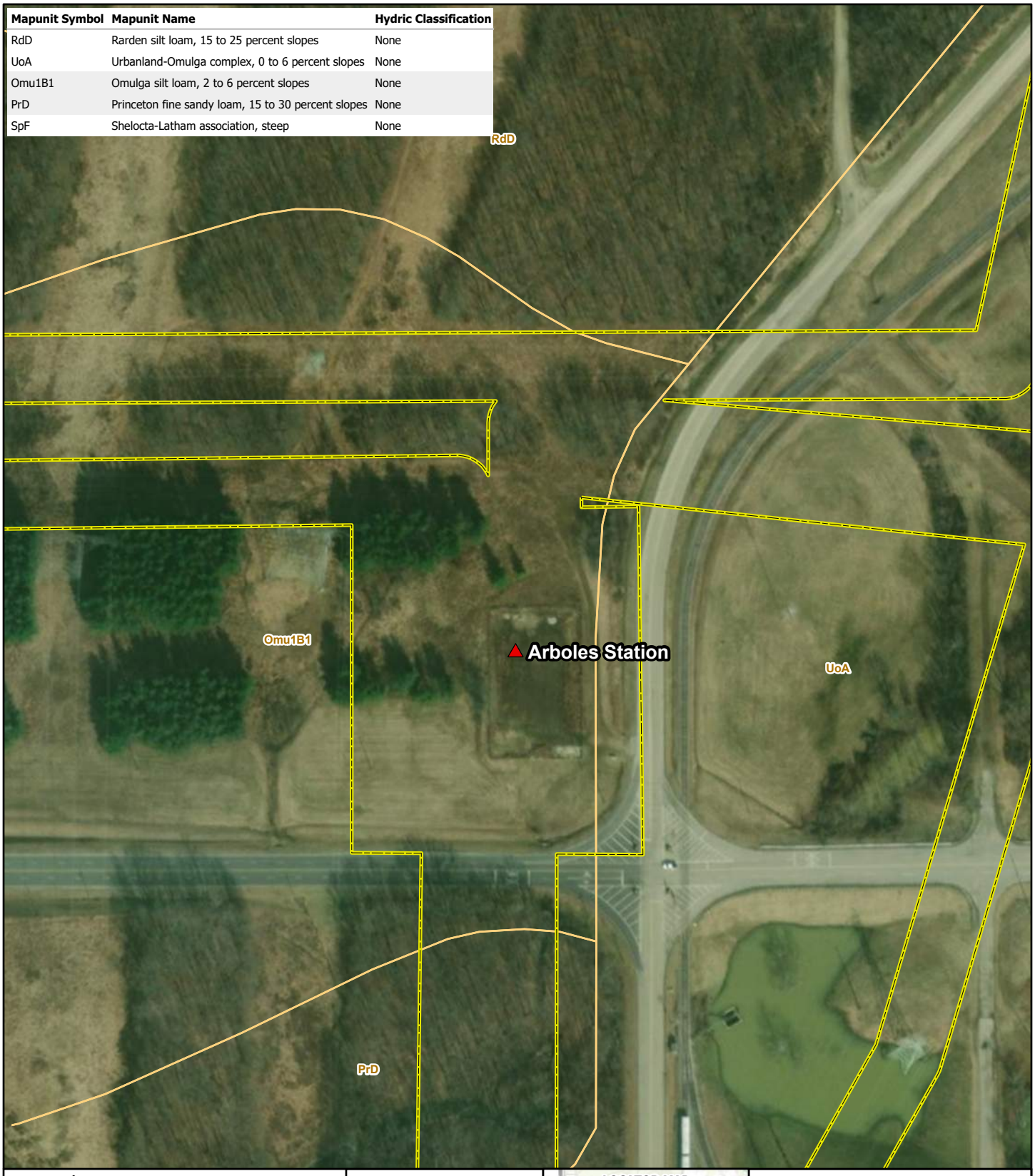
Figure 2.3
Soil, NHD, NWI Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

Mapunit Symbol	Mapunit Name	Hydric Classification
RdD	Rarden silt loam, 15 to 25 percent slopes	None
UoA	Urbanland-Omulga complex, 0 to 6 percent slopes	None
Omu1B1	Omulga silt loam, 2 to 6 percent slopes	None
PrD	Princeton fine sandy loam, 15 to 30 percent slopes	None
SpF	Shelocta-Latham association, steep	None



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Legend

- Proposed Station
- Existing Station
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- Environmental Survey Corridor

Note: No 100-year floodplain present in project area.

BASEMAP SOURCE:
VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, USDA FSA, GeoEye, Maxar

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

March 04, 2021

LOCATOR MAP

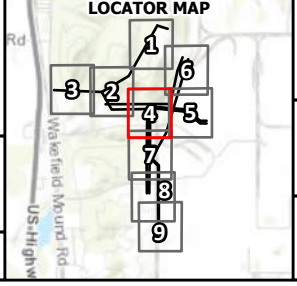


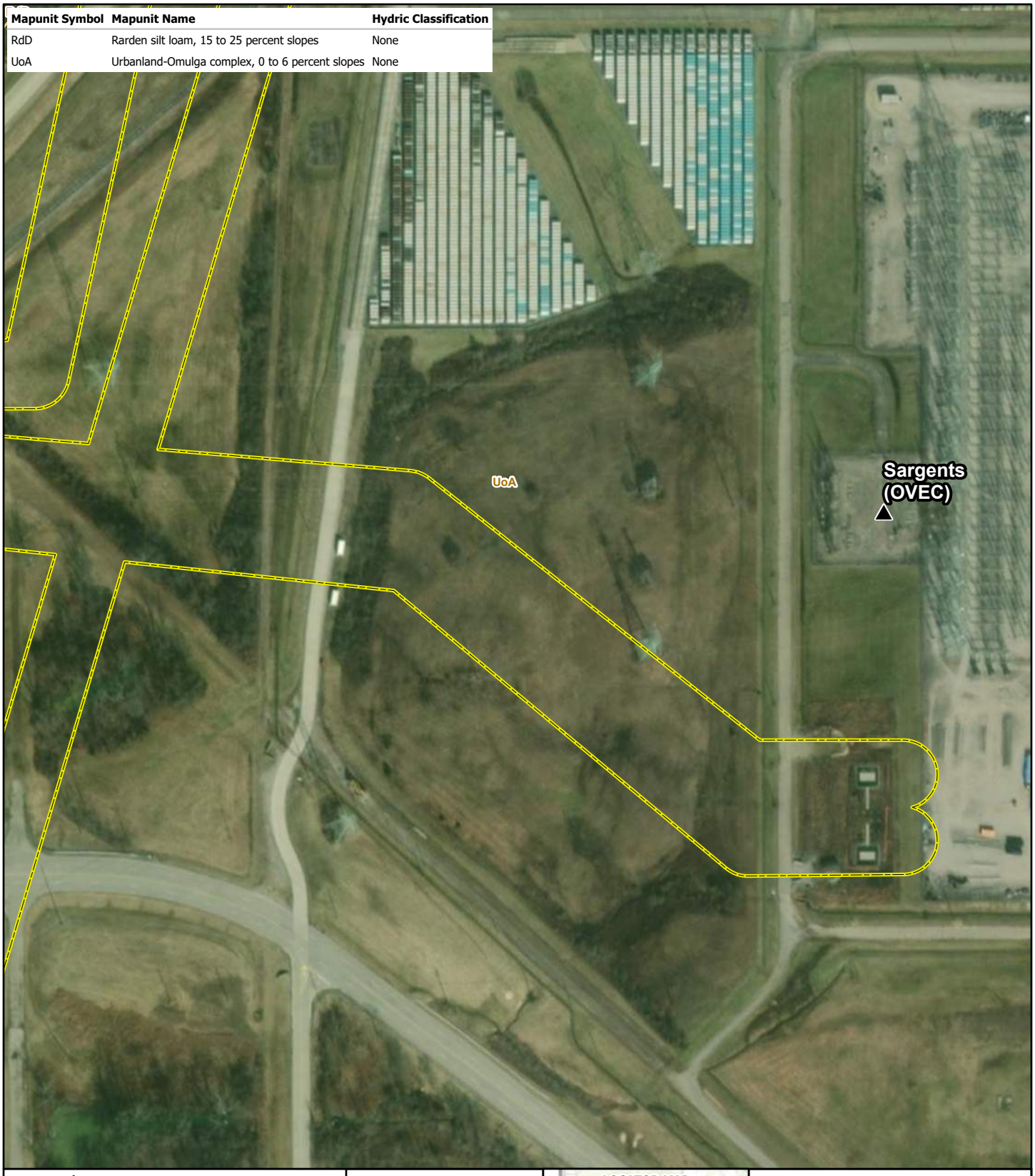
Figure 2.4
Soil, NHD, NWI Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

Mapunit Symbol	Mapunit Name	Hydric Classification
RdD	Rarden silt loam, 15 to 25 percent slopes	None
UoA	Urbanland-Omulga complex, 0 to 6 percent slopes	None



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Legend

- Proposed Station
- Existing Station
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- Environmental Survey Corridor

Note: No 100-year floodplain present in project area.

BASEMAP SOURCE:
VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, USDA FSA, GeoEye, Maxar

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

March 04, 2021

LOCATOR MAP

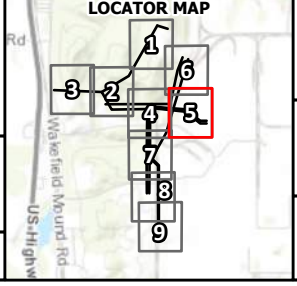


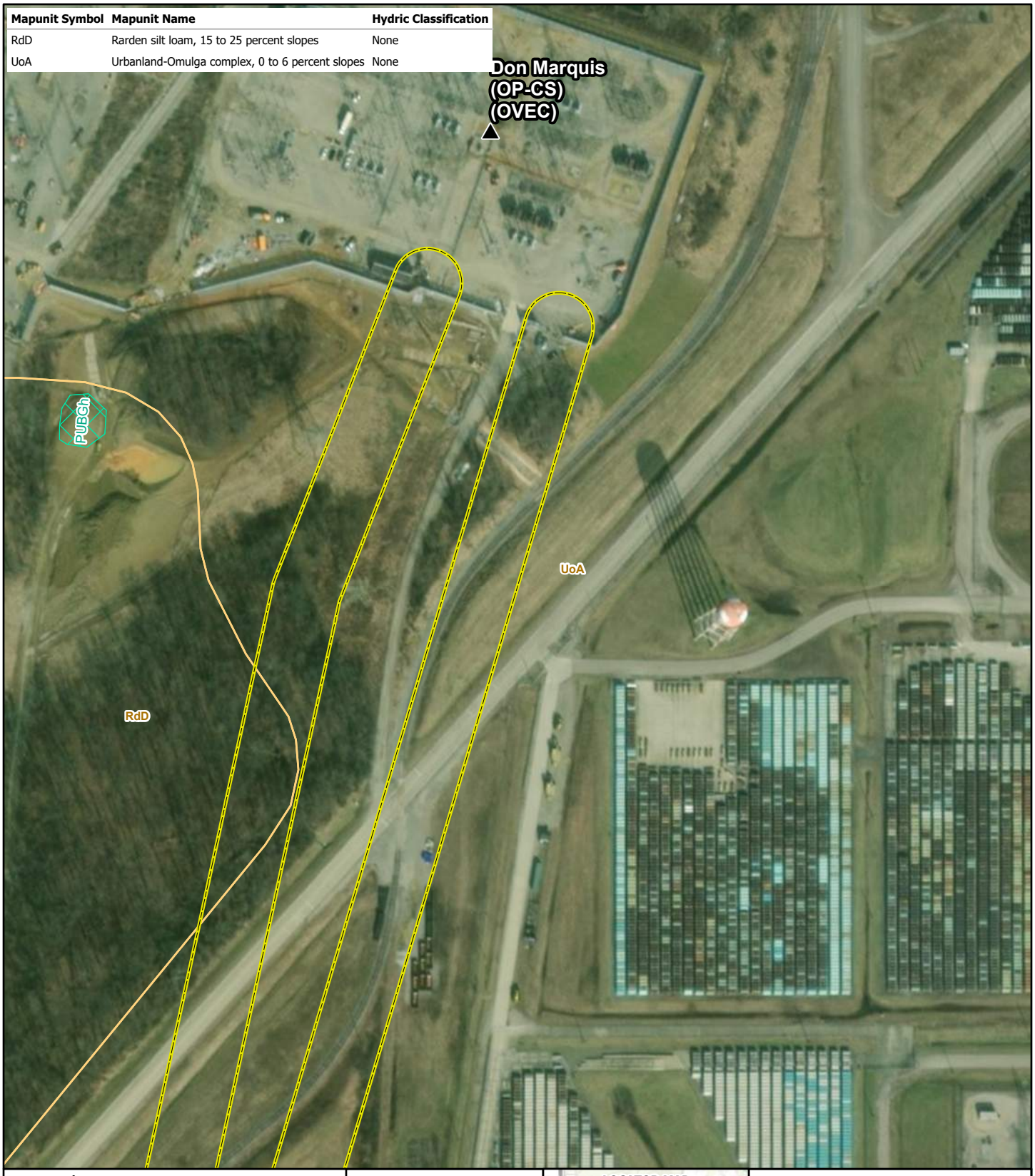
Figure 2.5
Soil, NHD, NWI Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

Mapunit Symbol	Mapunit Name	Hydric Classification
RdD	Rarden silt loam, 15 to 25 percent slopes	None
UoA	Urbanland-Omulga complex, 0 to 6 percent slopes	None



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Legend

- Proposed Station
- Existing Station
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- Environmental Survey Corridor

Note: No 100-year floodplain present in project area.

BASEMAP SOURCE:
VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, USDA FSA, GeoEye, Maxar

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

March 04, 2021

LOCATOR MAP

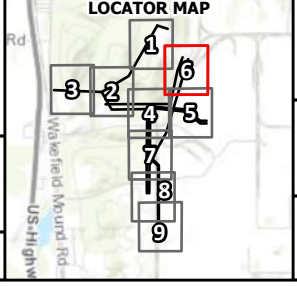
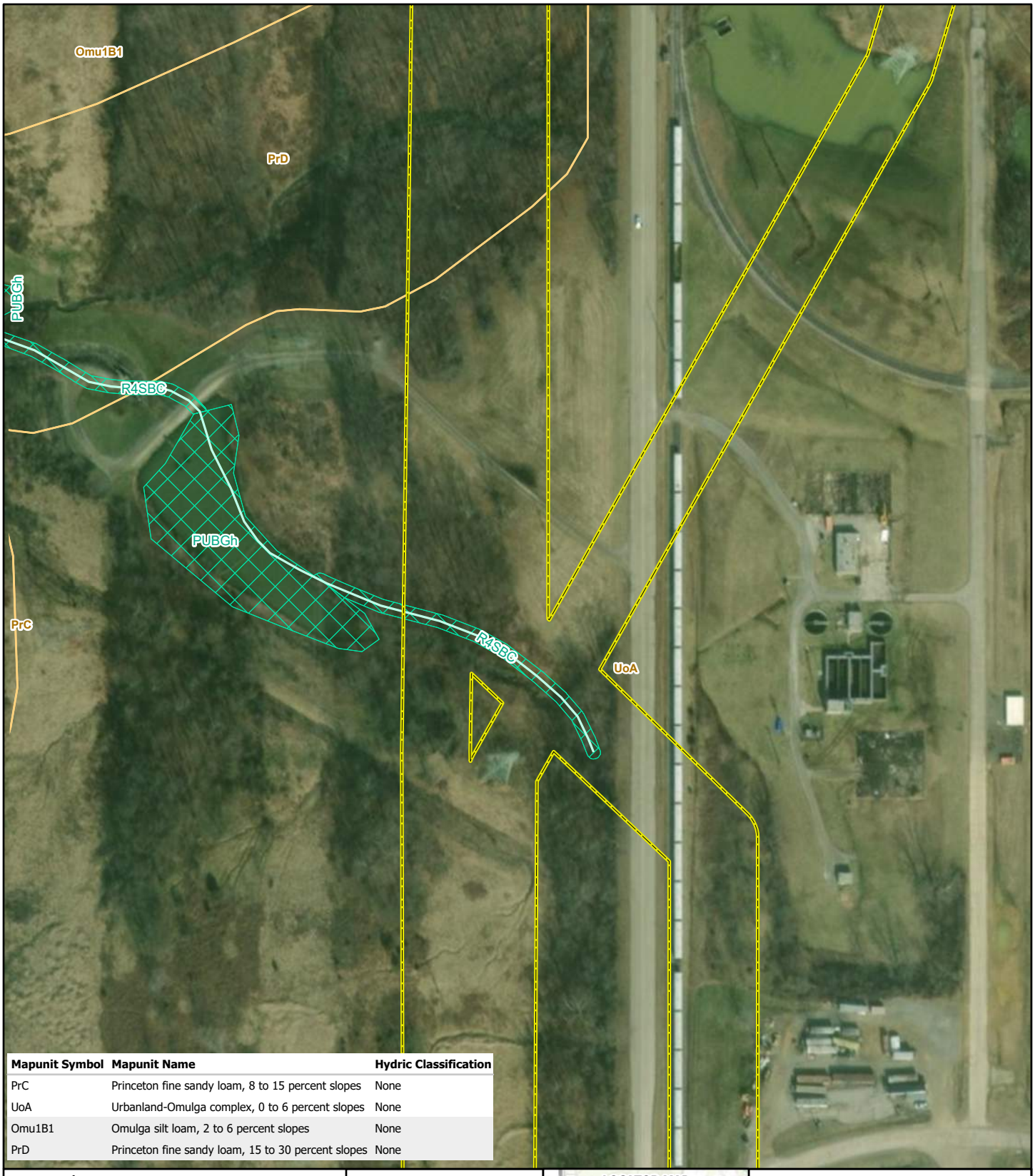


Figure 2.6
Soil, NHD, NWI Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet



Mapunit Symbol	Mapunit Name	Hydric Classification
PrC	Princeton fine sandy loam, 8 to 15 percent slopes	None
UoA	Urbanland-Omulga complex, 0 to 6 percent slopes	None
Omu1B1	Omulga silt loam, 2 to 6 percent slopes	None
PrD	Princeton fine sandy loam, 15 to 30 percent slopes	None

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Legend

- Proposed Station
- Existing Station
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- Environmental Survey Corridor

Note: No 100-year floodplain present in project area.

BASEMAP SOURCE: GeoEye, Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/ NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

March 04, 2021

LOCATOR MAP

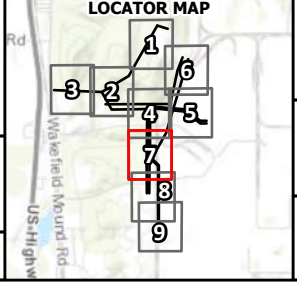

Figure 2.7
Soil, NHD, NWI Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

Mapunit Symbol	Mapunit Name	Hydric Classification
UoA	Urbanland-Omulga complex, 0 to 6 percent slopes	None

Legend

- Proposed Station
- Existing Station
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- Environmental Survey Corridor

Note: No 100-year floodplain present in project area.

BASEMAP SOURCE:
GeoEye, Maxar, Microsoft, VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

March 04, 2021

LOCATOR MAP

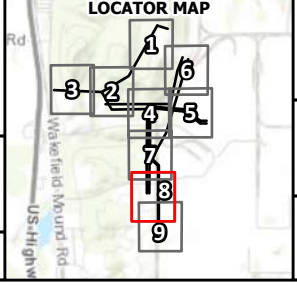

Figure 2.8
Soil, NHD, NWI Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

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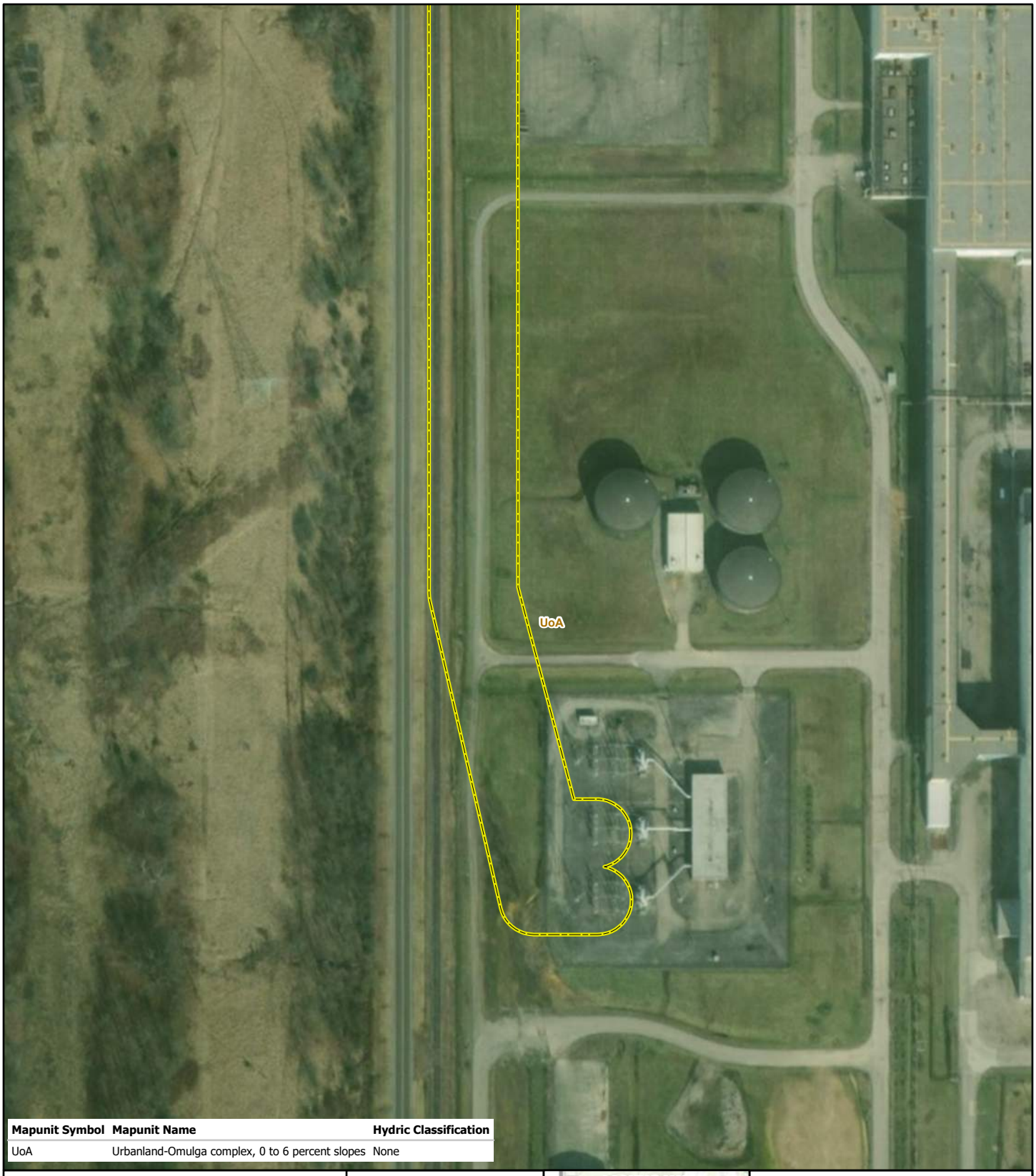

Mapunit Symbol	Mapunit Name	Hydric Classification
UoA	Urbanland-Omulga complex, 0 to 6 percent slopes	None

Legend

- Proposed Station
- Existing Station
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- Environmental Survey Corridor

Note: No 100-year floodplain present in project area.

BASEMAP SOURCE:
VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, USDA FSA, GeoEye, Maxar

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

March 04, 2021

LOCATOR MAP

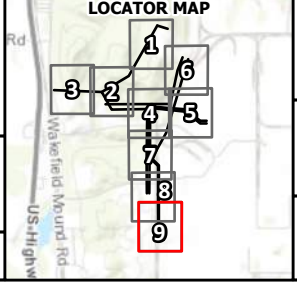

Figure 2.9
Soil, NHD, NWI Map

AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

Path: \\dc1vs01\GISProj\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Legend

- Proposed Station
- Existing Station
- Culvert
- Wetland Data Point
- Upland Data Point
- Non-Jurisdictional Drainage
- Environmental Survey Corridor
- Delineated Stream
- Delineated Wetland (PEM)
- Delineated Wetland (PFO)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond

BASEMAP SOURCE: GeoEye, Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/ NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
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Scale: 1:12,000

March 04, 2021

LOCATOR MAP

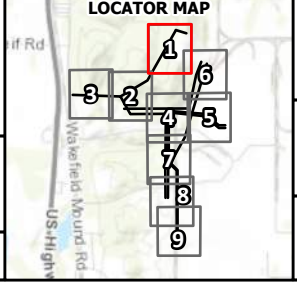


Figure 3.1
Delineated Features Map

AEP AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

Path: \\dc1vs01\GISProj\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Legend

- Proposed Station
- Existing Station
- Culvert
- Wetland Data Point
- Upland Data Point
- Non-Jurisdictional Drainage
- Environmental Survey Corridor
- Delineated Stream
- Delineated Wetland (PEM)
- Delineated Wetland (PFO)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond

BASEMAP SOURCE:
GeoEye, Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/ NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:12,000

March 04, 2021

LOCATOR MAP

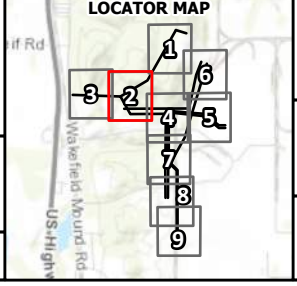
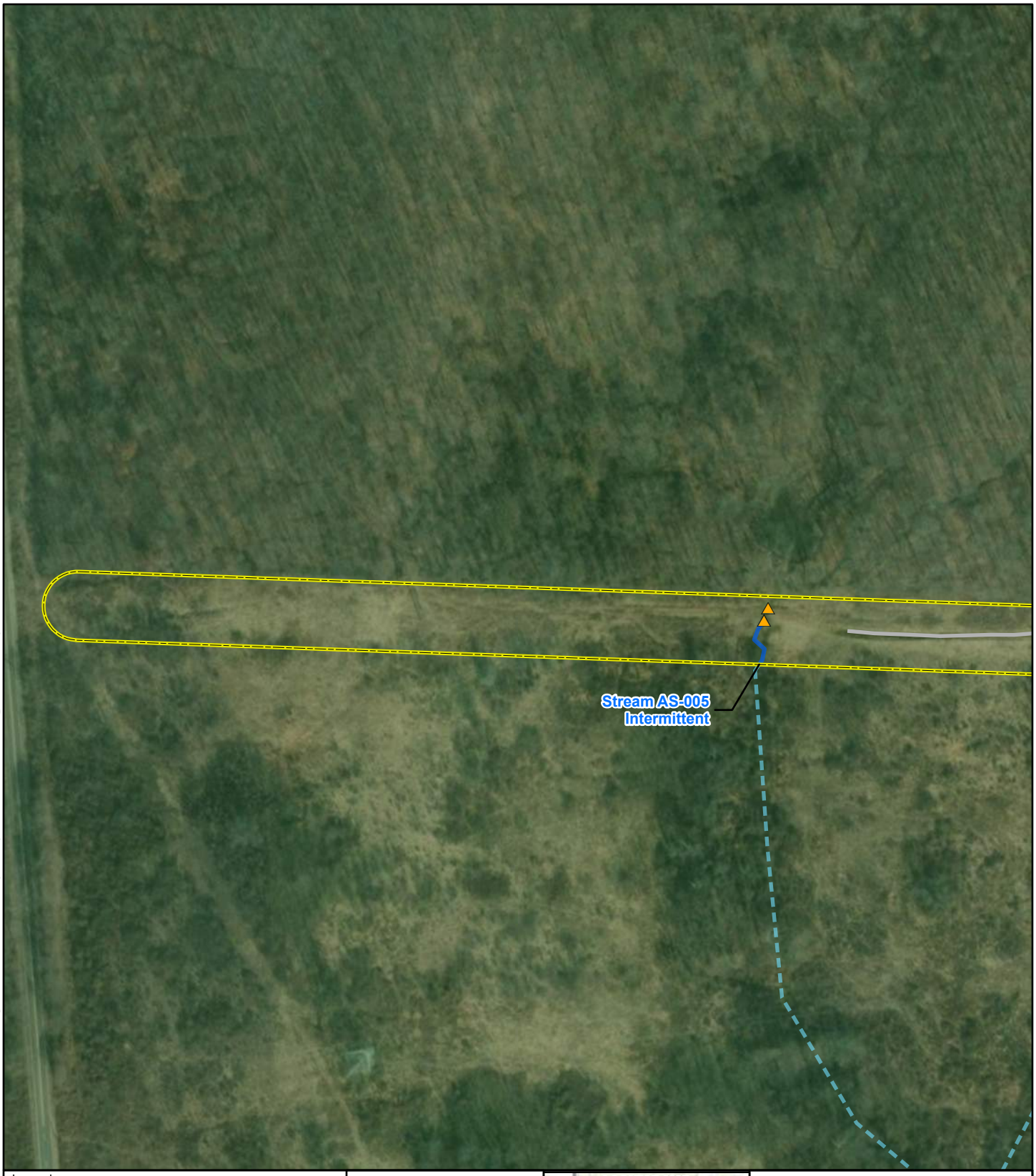


Figure 3.2
Delineated Features Map

AEP AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet



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Legend

- Proposed Station
- Existing Station
- Culvert
- Wetland Data Point
- Upland Data Point
- Non-Jurisdictional Drainage
- Environmental Survey Corridor
- Delineated Stream
- Delineated Wetland (PEM)
- Delineated Wetland (PFO)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond

BASEMAP SOURCE:
USDA FSA, GeoEye, Maxar, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/ NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:12,000

March 04, 2021

LOCATOR MAP

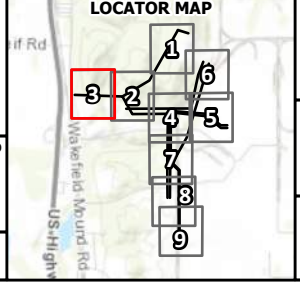
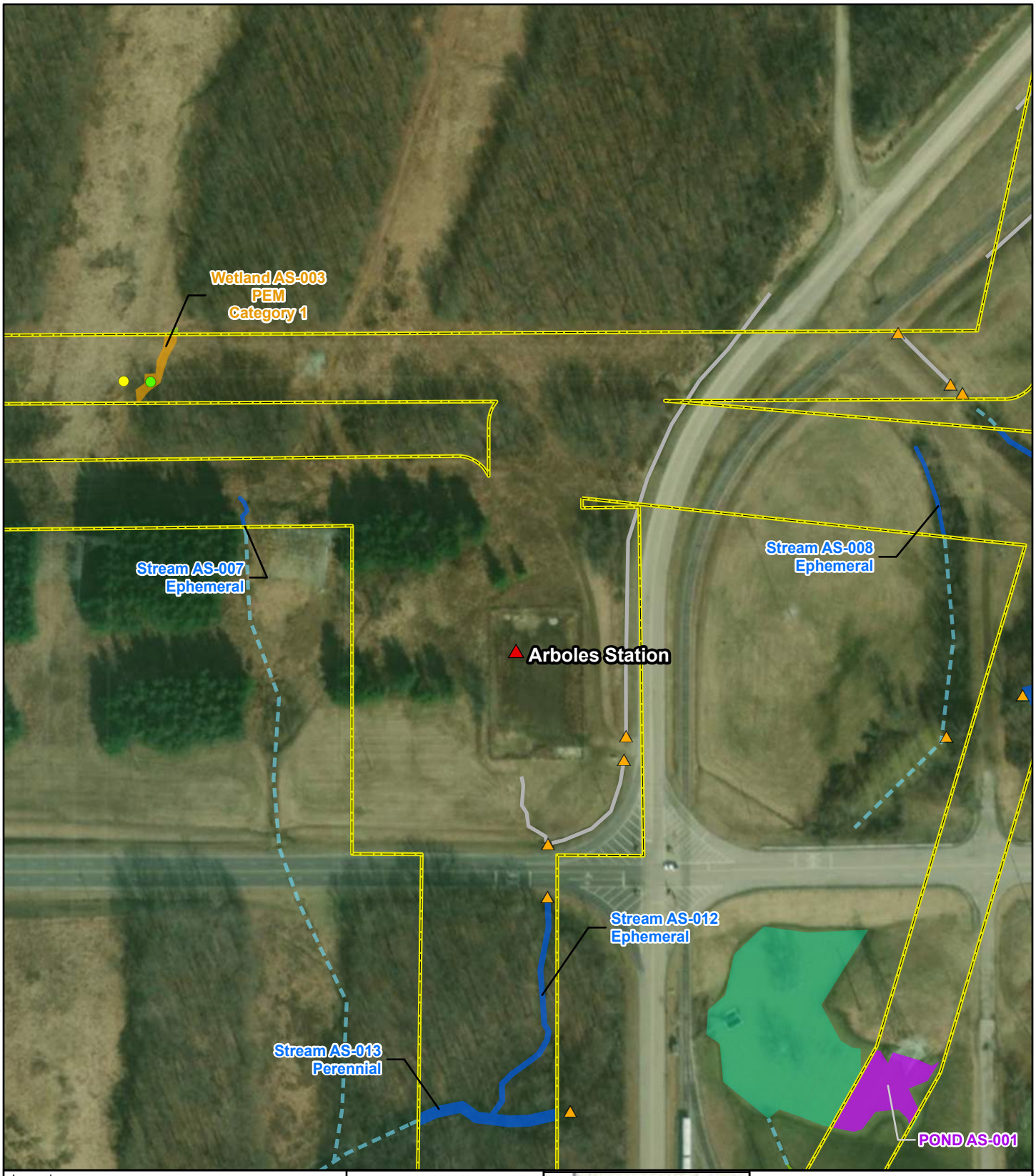


Figure 3.3
Delineated Features Map

AEP AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet



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Legend

- Proposed Station
- Existing Station
- Culvert
- Wetland Data Point
- Upland Data Point
- Non-Jurisdictional Drainage
- Environmental Survey Corridor
- Delineated Stream
- Delineated Wetland (PEM)
- Delineated Wetland (PFO)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond

BASEMAP SOURCE:
VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, USDA FSA, GeoEye, Maxar

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:12,000

March 04, 2021

LOCATOR MAP

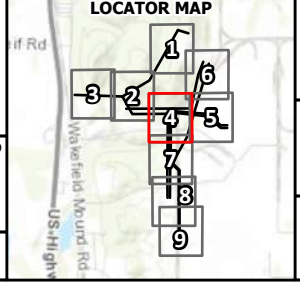
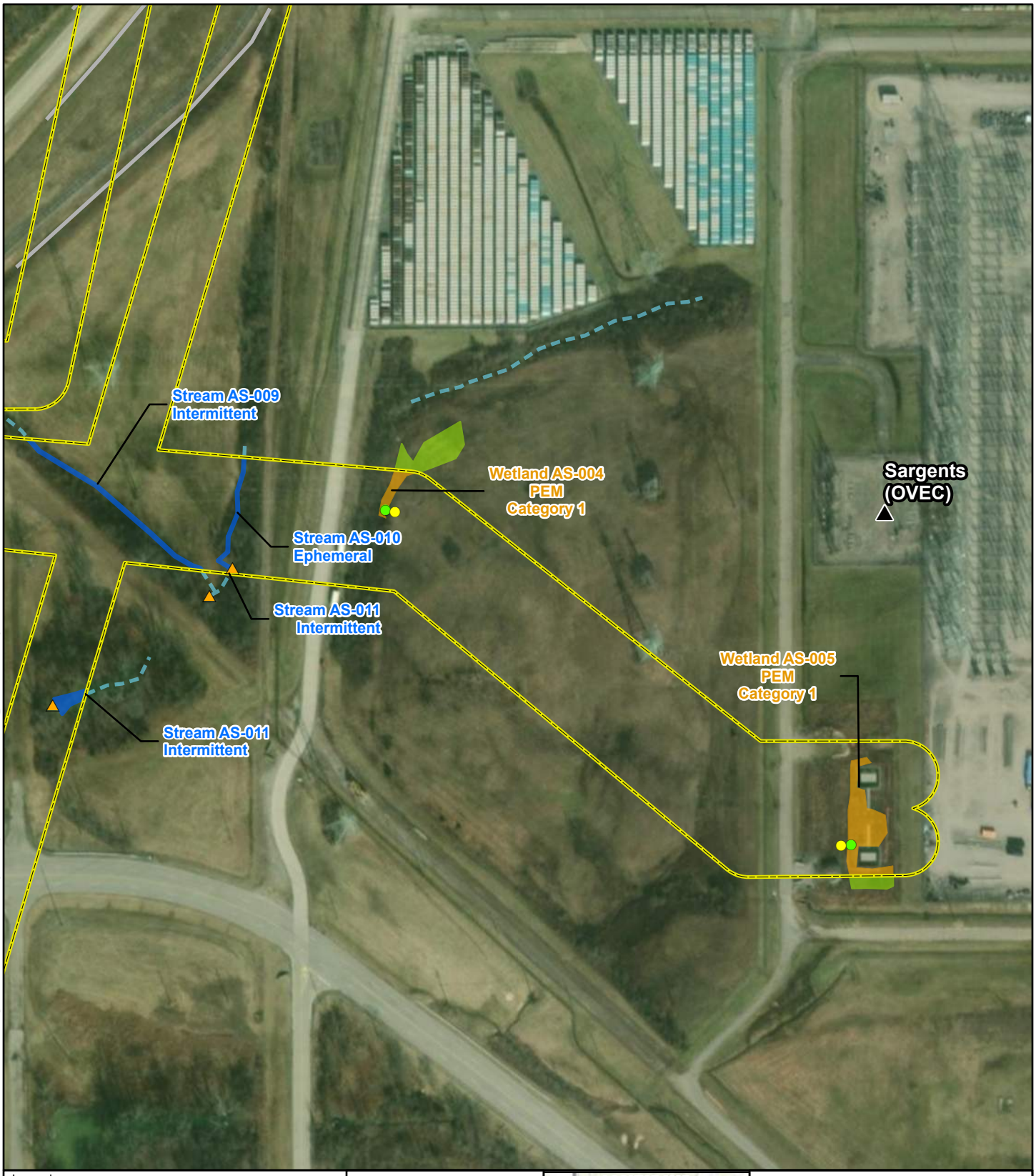


Figure 3.4
Delineated Features Map

AEP AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet



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Legend

- Proposed Station
- Existing Station
- Culvert
- Wetland Data Point
- Upland Data Point
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- Delineated Wetland (PEM)
- Delineated Wetland (PFO)
- Delineated Pond
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- Estimated Wetland
- Estimated Pond

BASEMAP SOURCE:
VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, USDA FSA, GeoEye, Maxar

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:12,000

March 04, 2021

LOCATOR MAP

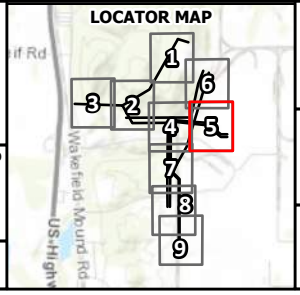
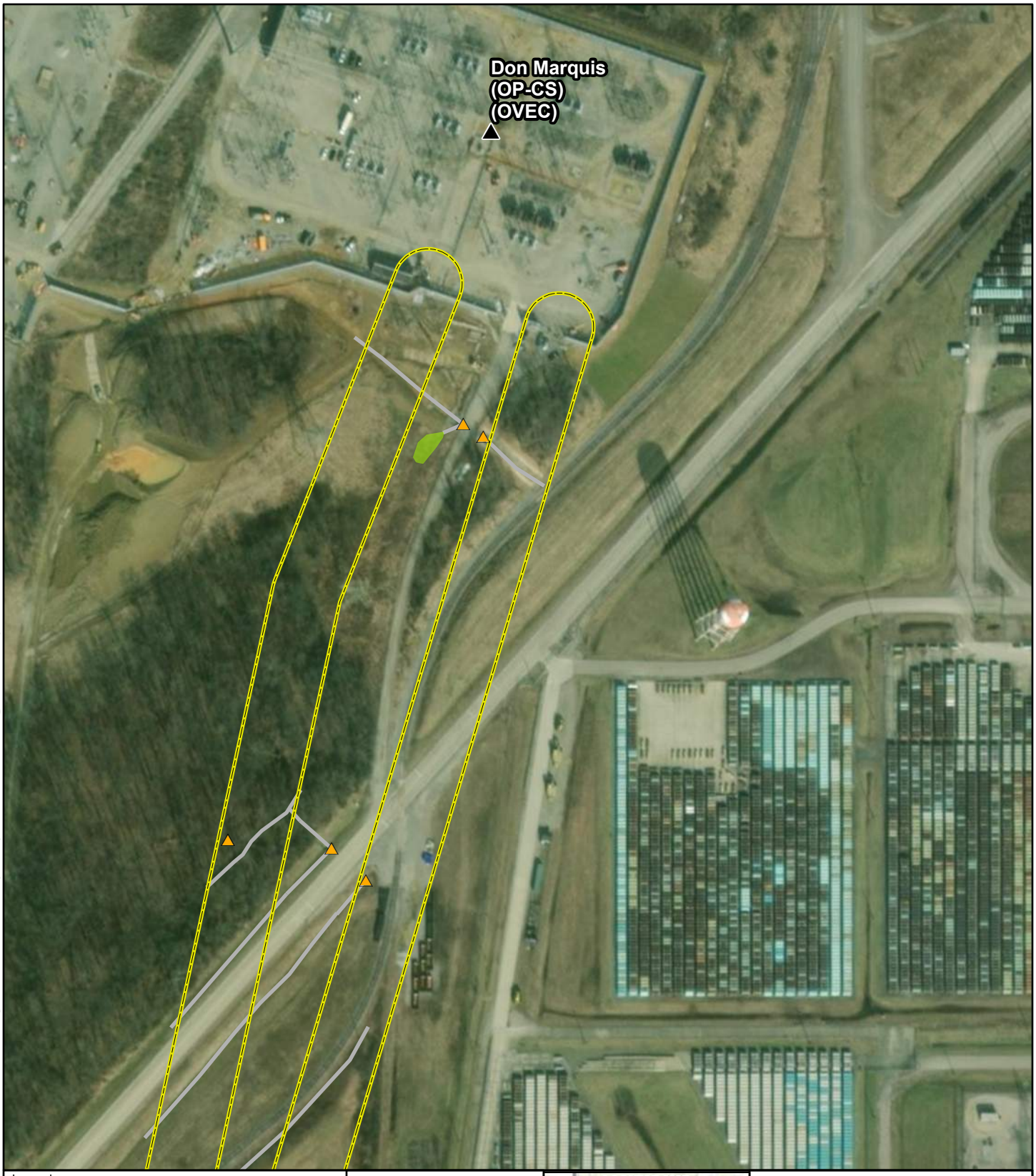


Figure 3.5
Delineated Features Map

AEP AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet



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Legend

- Proposed Station
- Existing Station
- Culvert
- Wetland Data Point
- Upland Data Point
- Non-Jurisdictional Drainage
- Environmental Survey Corridor
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- Delineated Wetland (PEM)
- Delineated Wetland (PFO)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond

BASEMAP SOURCE:
GeoEye, Maxar, Microsoft, VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:12,000

March 04, 2021

LOCATOR MAP

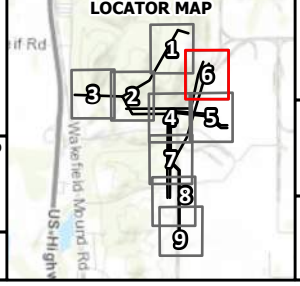
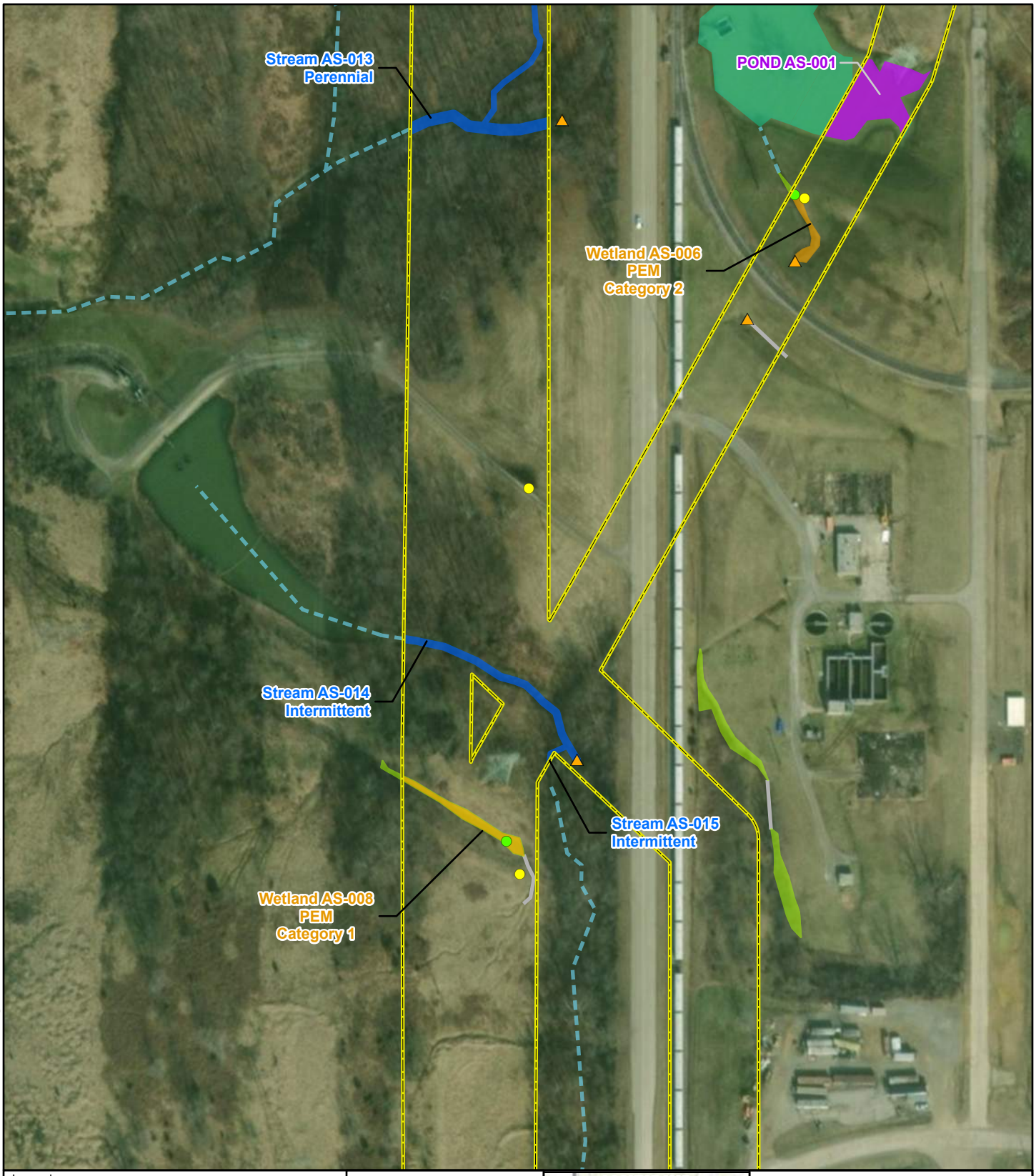


Figure 3.6
Delineated Features Map

AEP AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet



Legend

- Proposed Station
- Existing Station
- Culvert
- Wetland Data Point
- Upland Data Point
- Non-Jurisdictional Drainage
- Environmental Survey Corridor
- Delineated Stream
- Delineated Wetland (PEM)
- Delineated Wetland (PFO)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond

BASEMAP SOURCE:
GeoEye, Maxar, Microsoft, VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:12,000

March 04, 2021

LOCATOR MAP

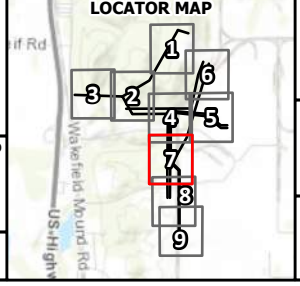


Figure 3.7
Delineated Features Map

AEP AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

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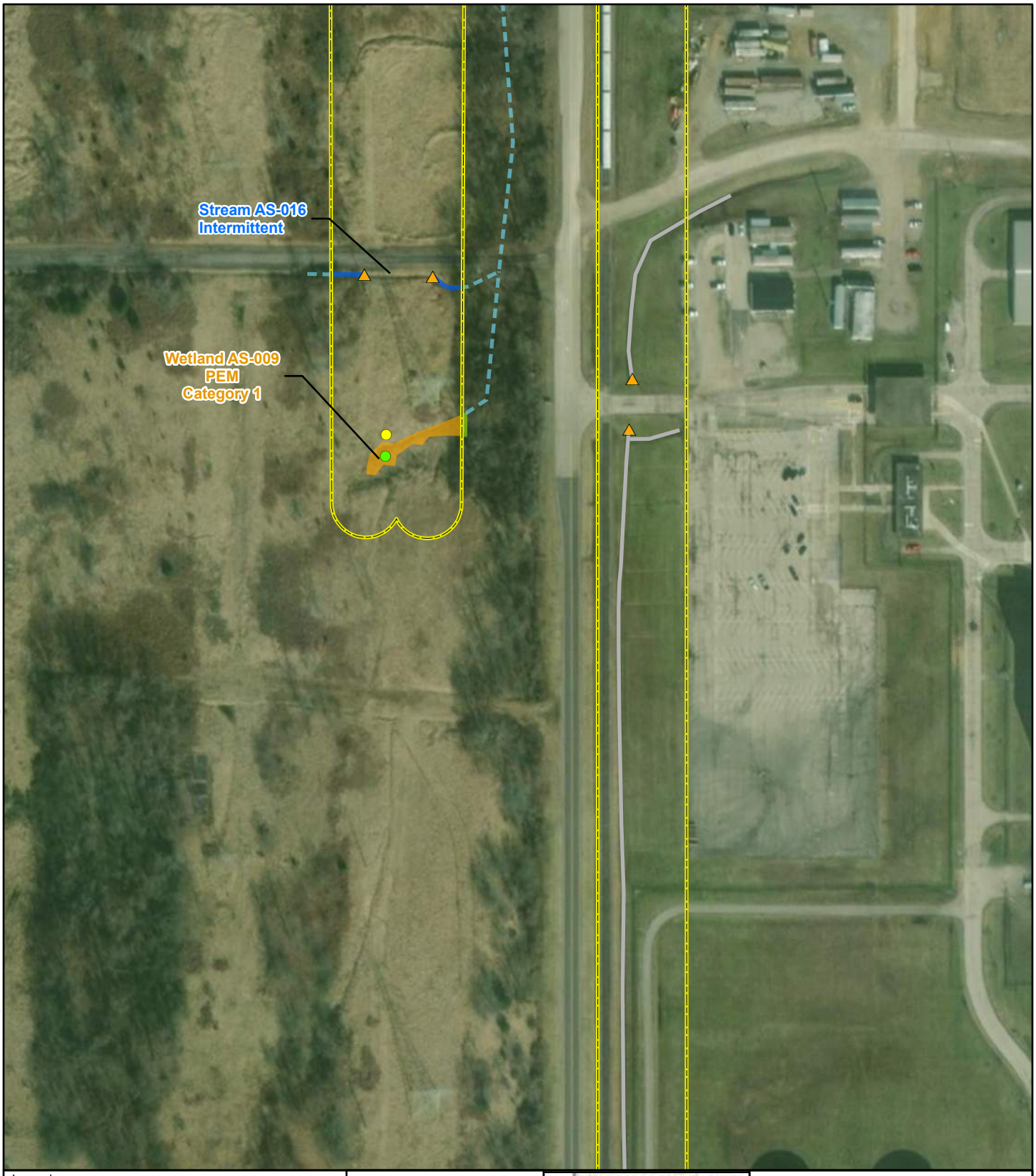

Legend

- Proposed Station
- Existing Station
- Culvert
- Wetland Data Point
- Upland Data Point
- Non-Jurisdictional Drainage
- Environmental Survey Corridor
- Delineated Stream
- Delineated Wetland (PEM)
- Delineated Wetland (PFO)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond

BASEMAP SOURCE:
GeoEye, Maxar, Microsoft, VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:12,000

March 04, 2021

LOCATOR MAP

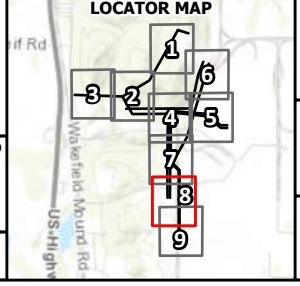

Figure 3.8
Delineated Features Map

AEP AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

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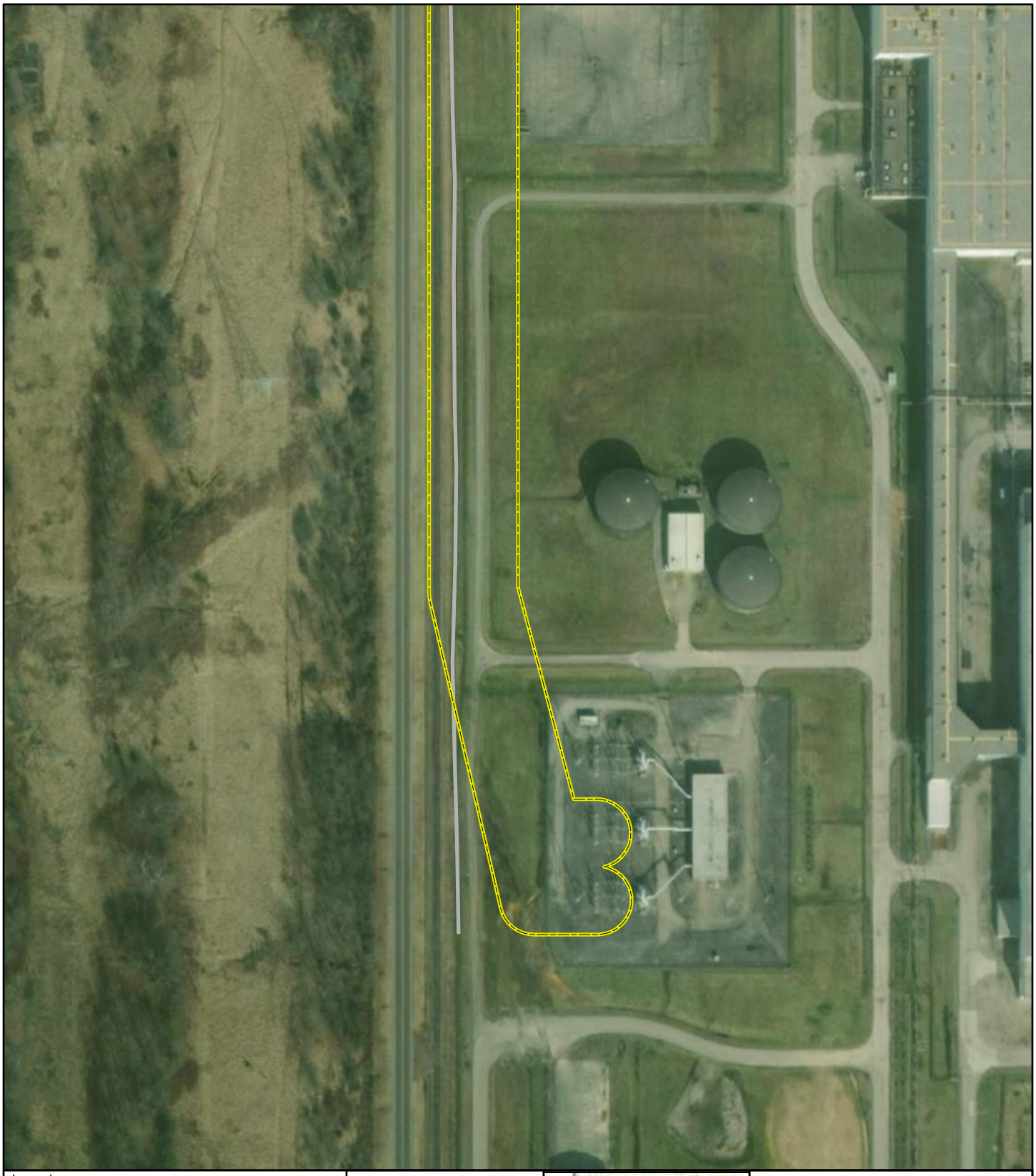


Legend

- Proposed Station
- Existing Station
- Culvert
- Wetland Data Point
- Upland Data Point
- Non-Jurisdictional Drainage
- Environmental Survey Corridor
- Delineated Stream
- Delineated Wetland (PEM)
- Delineated Wetland (PFO)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond

BASEMAP SOURCE:
VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, USDA FSA, GeoEye, Maxar

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:12,000

March 04, 2021

LOCATOR MAP

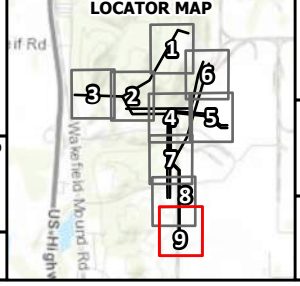


Figure 3.9
Delineated Features Map

AEP AMERICAN ELECTRIC POWER

Arboles Station and Transmission Lines Project

0 50 100 150 200
Feet

Path: \\dc1vs01\GISProj\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor
- Existing Roadway/ Railroad
- Gravel Lot
- Gravel Substation Pad
- Old Field
- Upland Scrub Shrub
- Commercial Lawn
- Upland Forested
- Open Water

BASEMAP SOURCE:
Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

October 01, 2021

LOCATOR MAP

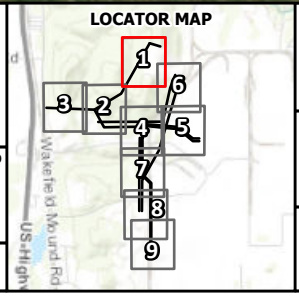


Figure 4.1
Habitat Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Arboles Station and Transmission Lines Project

0 50 100 150 200
US Feet

Path: \\dc1vs01\gisproj\AI\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor
- Existing Roadway/ Railroad
- Gravel Lot
- Gravel Substation Pad
- Old Field
- Upland Scrub Shrub
- Commercial Lawn
- Upland Forested
- Open Water

BASEMAP SOURCE:
Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

October 01, 2021

LOCATOR MAP

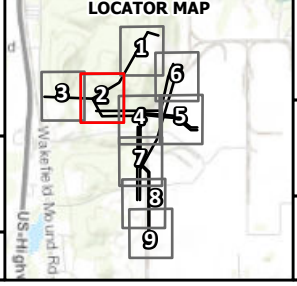


Figure 4.2
Habitat Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Arboles Station and Transmission Lines Project

0 50 100 150 200
US Feet

Path: \\dc1vs01\gisproj\AI\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor
- Existing Roadway/ Railroad
- Gravel Lot
- Gravel Substation Pad
- Old Field
- Upland Scrub Shrub
- Commercial Lawn
- Upland Forested
- Open Water

BASEMAP SOURCE:
Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

October 01, 2021

LOCATOR MAP

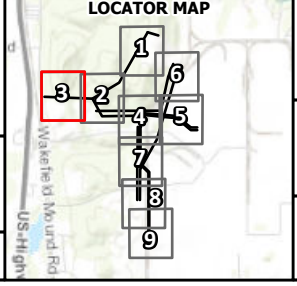


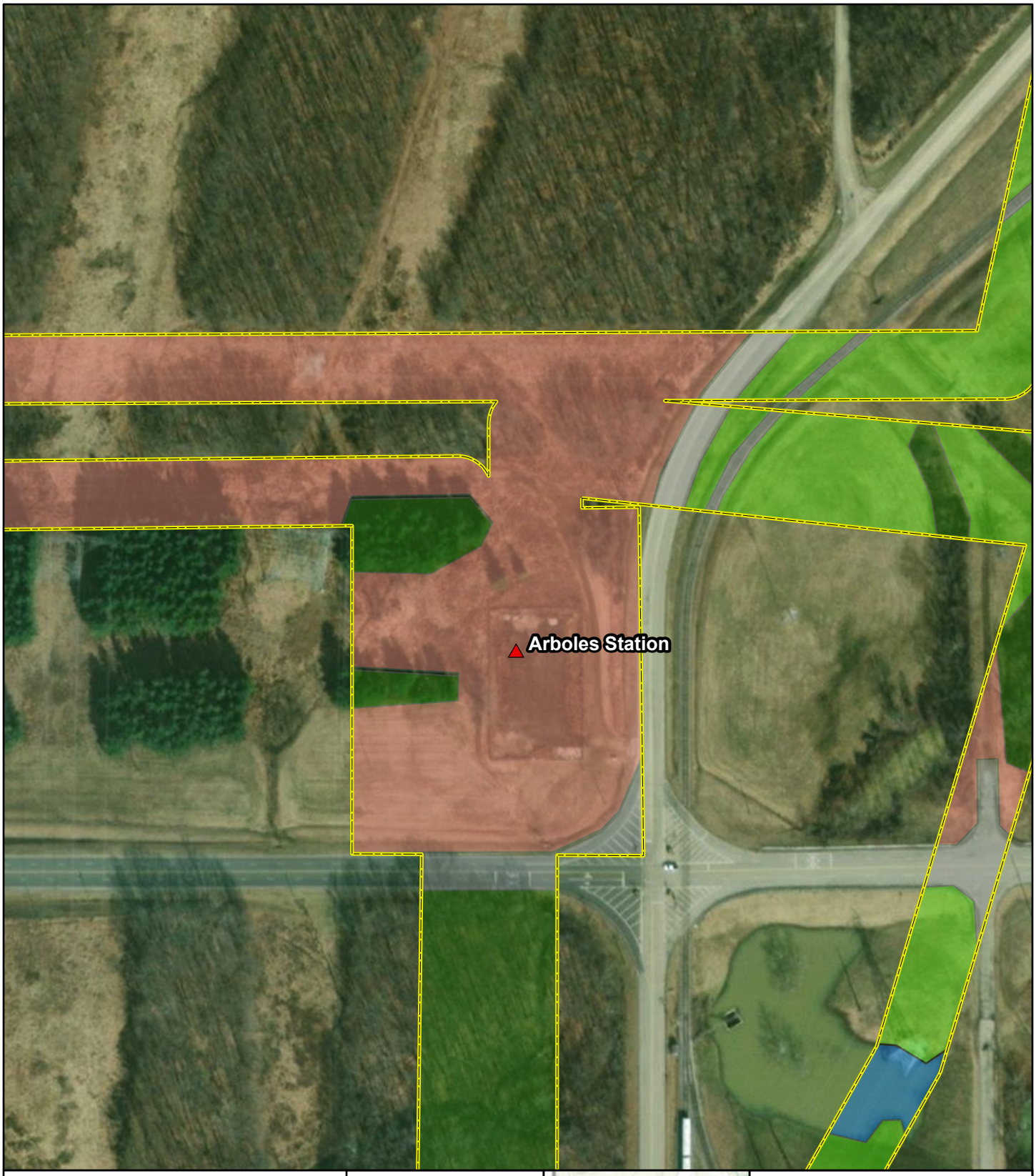
Figure 4.3
Habitat Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Arboles Station and Transmission Lines Project

0 50 100 150 200
US Feet

Path: \\dc1vs01\gisproj\AI\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx



Path: \\dc1vs01\gisproj\AI\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor
- Existing Roadway/ Railroad
- Gravel Lot
- Gravel Substation Pad
- Old Field
- Upland Scrub Shrub
- Commercial Lawn
- Upland Forested
- Open Water

BASEMAP SOURCE:
Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

October 01, 2021

LOCATOR MAP

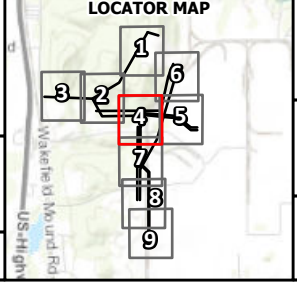
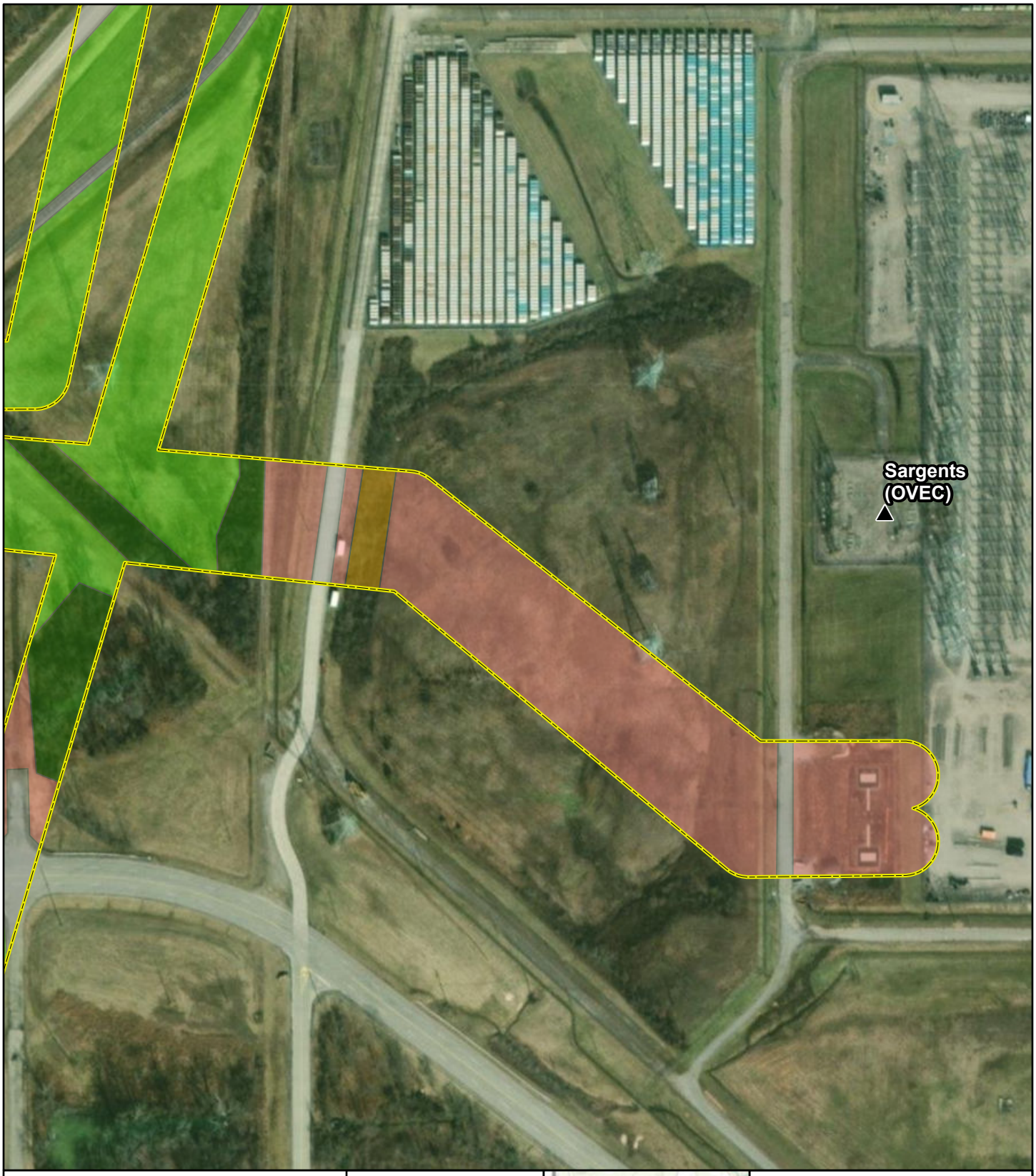


Figure 4.4
Habitat Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Arboles Station and Transmission Lines Project

0 50 100 150 200
US Feet



Path: \\dc1vs01\gisproj\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor
- Existing Roadway/ Railroad
- Gravel Lot
- Gravel Substation Pad
- Old Field
- Upland Scrub Shrub
- Commercial Lawn
- Upland Forested
- Open Water

BASEMAP SOURCE:
Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

October 01, 2021

LOCATOR MAP

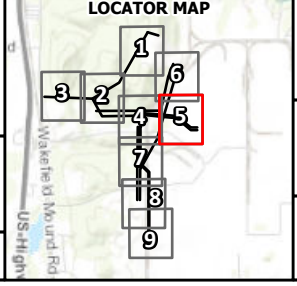
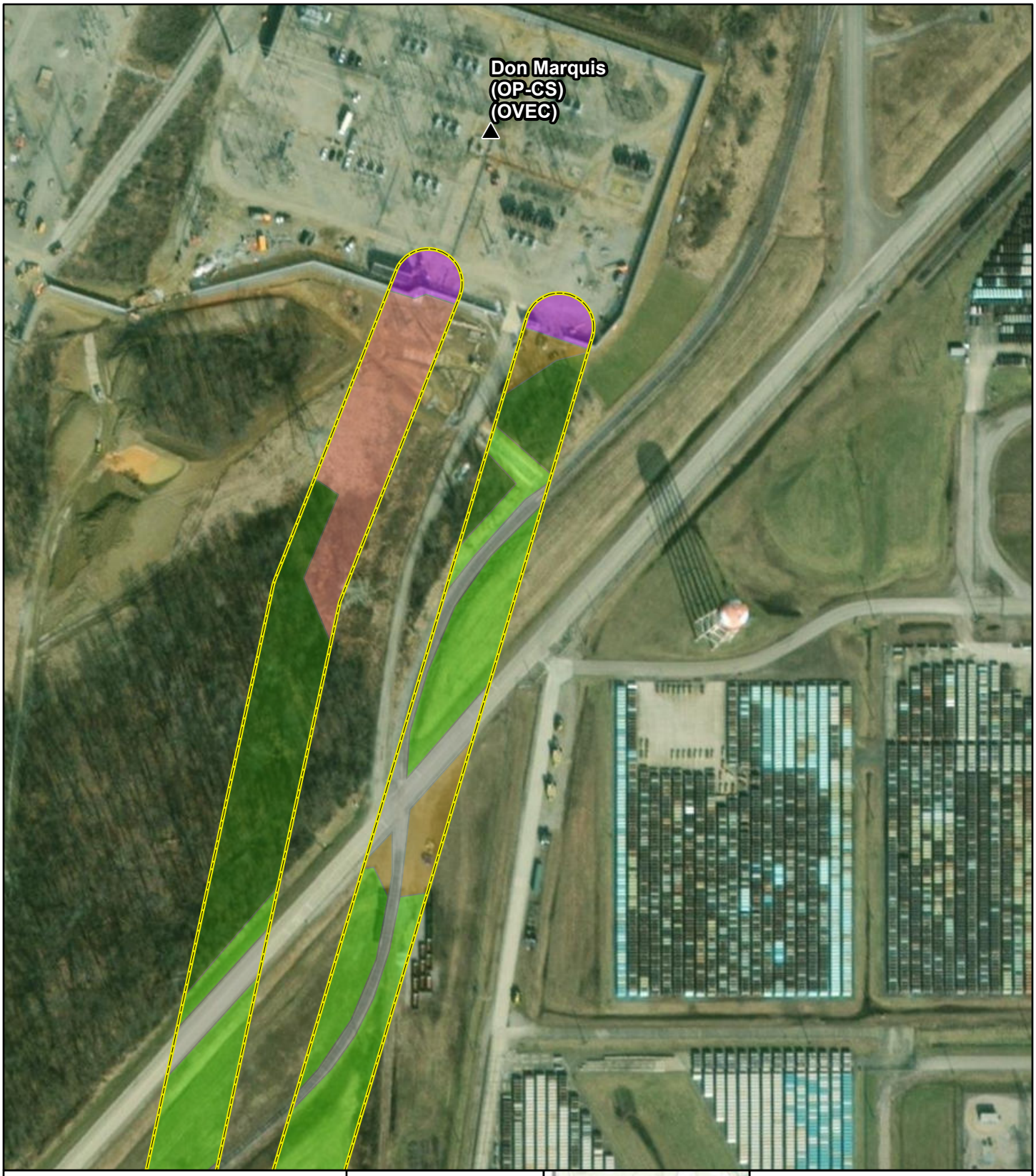


Figure 4.5
Habitat Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Arboles Station and Transmission Lines Project

0 50 100 150 200
US Feet



Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor
- Existing Roadway/ Railroad
- Gravel Lot
- Gravel Substation Pad
- Old Field
- Upland Scrub Shrub
- Commercial Lawn
- Upland Forested
- Open Water

BASEMAP SOURCE:
Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

October 01, 2021

LOCATOR MAP

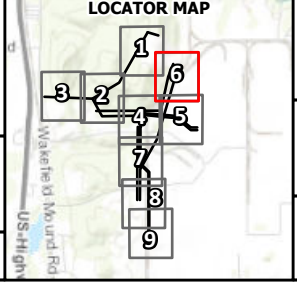


Figure 4.6
Habitat Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Arboles Station and Transmission Lines Project

0 50 100 150 200
US Feet

Path: \\dc1vs01\gisproj\AI\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Path: \\dc1vs01\gisproj\AI\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor
- Existing Roadway/ Railroad
- Gravel Lot
- Gravel Substation Pad
- Old Field
- Upland Scrub Shrub
- Commercial Lawn
- Upland Forested
- Open Water

BASEMAP SOURCE:
Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

October 01, 2021

LOCATOR MAP

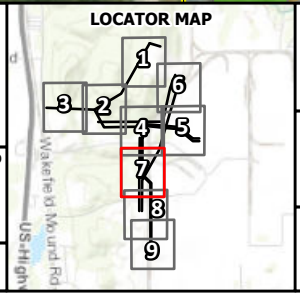


Figure 4.7
Habitat Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Arboles Station and Transmission Lines Project

0 50 100 150 200
US Feet

Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor
- Existing Roadway/ Railroad
- Gravel Lot
- Gravel Substation Pad
- Old Field
- Upland Scrub Shrub
- Commercial Lawn
- Upland Forested
- Open Water

BASEMAP SOURCE:
Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

October 01, 2021

LOCATOR MAP

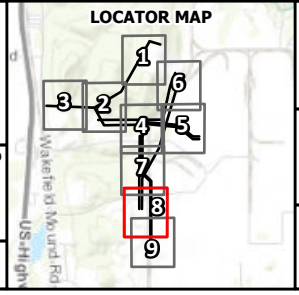


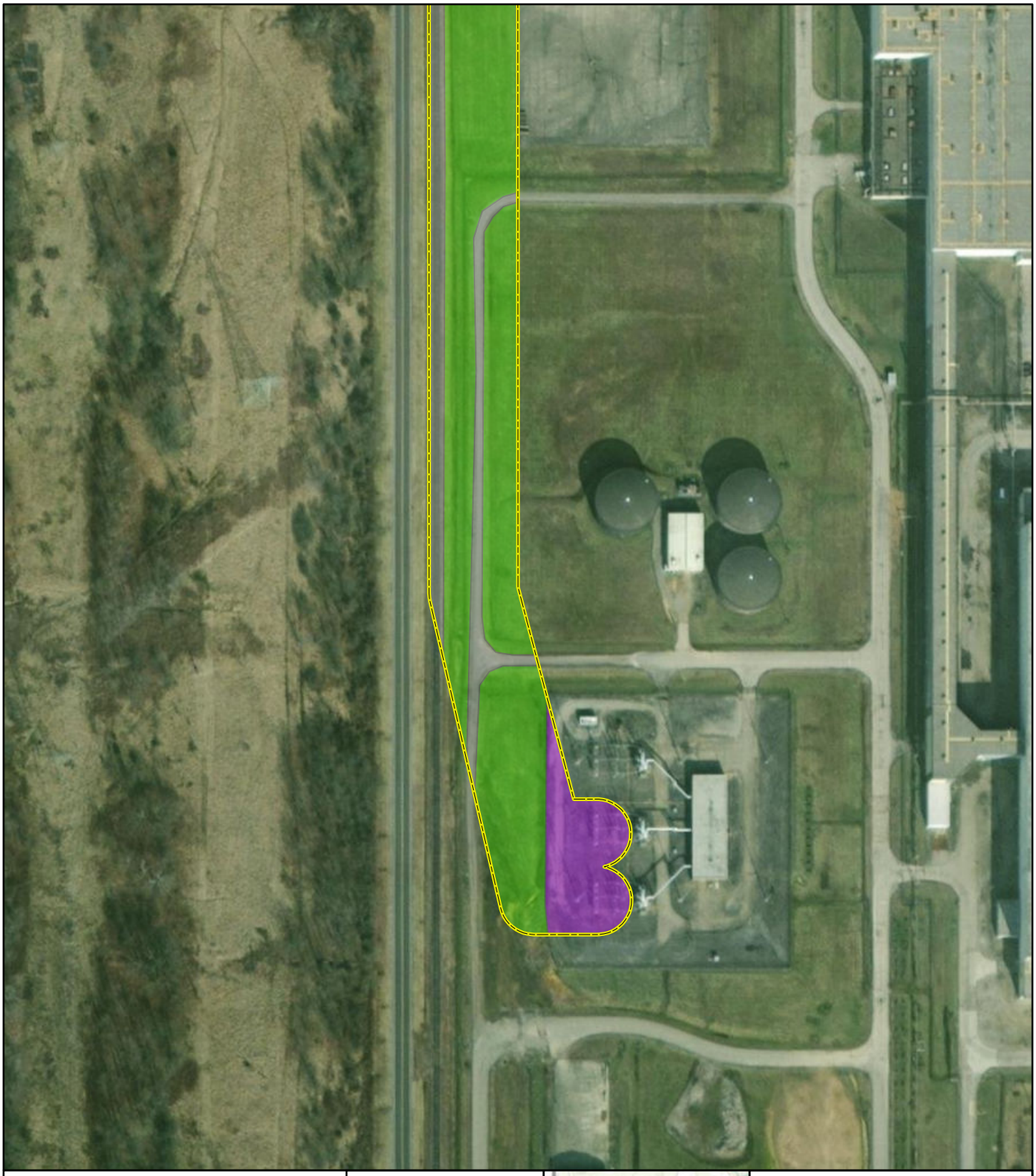
Figure 4.8
Habitat Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Arboles Station and Transmission Lines Project

0 50 100 150 200
US Feet

Path: \\dc1vs01\gisproj\AI\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx



Legend

- Proposed Station
- Existing Station
- Environmental Survey Corridor
- Existing Roadway/ Railroad
- Gravel Lot
- Gravel Substation Pad
- Old Field
- Upland Scrub Shrub
- Commercial Lawn
- Upland Forested
- Open Water

BASEMAP SOURCE:
Maxar, Microsoft, VITA, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Coordinate System: State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:2400

October 01, 2021

LOCATOR MAP

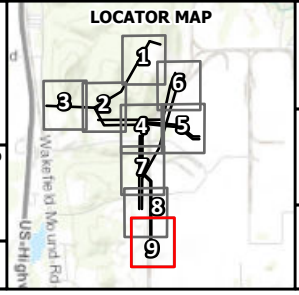


Figure 4.9
Habitat Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Arboles Station and Transmission Lines Project

0 50 100 150 200
US Feet

Path: \\dc1vs01\gisproj\AI\AEP\Arboles\Maps\Report\WDR\WDR_Figures_Pro.aprx

Appendix B
U.S. Army Corps of Engineers (USACE) Wetland Determination Forms – Eastern Mountains & Piedmont Region

Wetland AS-001

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/20/2021

Applicant/Owner: AEP State: OH Sampling Point: W-BAO-012021-01

Investigator(s): BAO, JFW Section, Township, Range: S 6 T 4N R 22W

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.02382 Long: -83.01097 Datum: WGS 84

Soil Map Unit Name: CoB: Coolville silt loam, 1 to 8 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland next to substation, almost entirely outside of survey corridor.

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 2.00

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-BAO-012021-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha angustifolia	80	Y	OBL
2. Andropogon virginicus	10	N	FACU
3. Setaria pumila	5	N	FAC
4. Erigeron annuus	5	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	100 (A)		155 (B)

Prevalence Index = B/A = 1.55

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: W-BAO-012021-01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	2.5Y 5/1	90	10YR 5/8	10	C	PL	Clay	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

US Department of Energy property does not allow digging past 12"

Upland AS-001

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/20/2021

Applicant/Owner: AEP State: OH Sampling Point: U-BAO-012021-01

Investigator(s): BAO, JFW Section, Township, Range: S 6 T 4N R 22W

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.02386 Long: -83.01113 Datum: WGS 84

Soil Map Unit Name: CoB: Coolville silt loam, 1 to 8 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland point associated with Wetland AS-001 (W-BAO-012021-01). Upland soils appears disturbed from prior substation development impact

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-BAO-012021-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Setaria faberi	20	N	UPL
2. Solidago canadensis	20	N	FACU
3. Andropogon virginicus	5	N	FACU
4. Daucus carota	5	N	UPL
5. Erigeron annuus	15	N	FACU
6. Schedonorus arundinaceus	40	Y	FACU
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
50% of total cover: 53	20% of total cover: 21		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	80	x 4 =	320
UPL species	25	x 5 =	125
Column Totals:	105 (A)		445 (B)

Prevalence Index = B/A = 4.24

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: U-BAO-012021-01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 6/3	70	10YR 7/8	30	C	M	Silty clay	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

US Department of Energy property does not allow digging past 12"

Wetland AS-002

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/20/2021

Applicant/Owner: AEP State: OH Sampling Point: W-BAO-012021-02

Investigator(s): BAO, JFW Section, Township, Range: S 6 T 4N R 22W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.01655 Long: -83.01735 Datum: WGS 84

Soil Map Unit Name: Omu1B1: Omulga silt loam, 2 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland within t-line ROW; tire ruts running through

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 6.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 6.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-BAO-012021-02

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	40	Y	FAC
2. Juncus effusus	40	Y	FACW
3. Leersia virginica	30	Y	FACW
4. Scirpus cyperinus	10	N	FACW
5. Persicaria sagittata	5	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	125 = Total Cover		
50% of total cover: 63	20% of total cover: 25		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	80	x 2 =	160
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	125 (A)		285 (B)

Prevalence Index = B/A = 2.28

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: W-BAO-012021-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/2	90	10YR 4/6	10	C	PL	Silty clay	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

US Department of Energy property does not allow digging past 12"

Upland AS-002

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/20/2021

Applicant/Owner: AEP State: OH Sampling Point: U-BAO-012021-02

Investigator(s): BAO, JFW Section, Township, Range: S 6 T 4N R 22W

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.01653 Long: -83.01728 Datum: WGS 84

Soil Map Unit Name: Omu1B1: Omulga silt loam, 2 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland point associated with W-BAO-012021-02

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-BAO-012021-02

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	30	Y	FAC
2. Schedonorus arundinaceus	60	Y	FACU
3. Daucus carota	10	N	UPL
4. Rubus allegheniensis	20	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	80	x 4 =	320
UPL species	10	x 5 =	50
Column Totals:	120 (A)		460 (B)

Prevalence Index = B/A = 3.83

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: U-BAO-012021-02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/4	100	/				Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

US Department of Energy property does not allow digging past 12"

Wetland AS-003

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/21/2021

Applicant/Owner: AEP State: OH Sampling Point: W-BAO-012121-05

Investigator(s): BAO, JFW Section, Township, Range: S 6 T 4N R 22W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.01648 Long: -83.01412 Datum: WGS 84

Soil Map Unit Name: Omu1B1: Omulga silt loam, 2 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland near the bottom of a hill and within t-line ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-BAO-012121-05

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	20	N	FACW
2. Dichanthelium clandestinum	20	N	FAC
3. Onoclea sensibilis	20	N	FACW
4. Dichanthelium scoparium	70	Y	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
50% of total cover: 65	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	130 (A)		280 (B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: W-BAO-012121-05

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 5/1	85	7.5YR 5/8	15	C	M, PL	Silty clay	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

US Department of Energy property does not allow digging past 12"

Upland AS-003

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/21/2021

Applicant/Owner: AEP State: OH Sampling Point: U-BAO-012121-05

Investigator(s): BAO, JFW Section, Township, Range: S 6 T 4N R 22W

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): Undulating Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 39.01651 Long: -83.01417 Datum: WGS 84

Soil Map Unit Name: Omu1B1: Omulga silt loam, 2 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland point associated with W-BAO-012121-05

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-BAO-012121-05

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Andropogon virginicus	10	N	FACU
2. Dichanthelium clandestinum	30	Y	FAC
3. Dichanthelium scoparium	20	N	FACW
4. Schedonorus arundinaceus	60	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	120 (A)		410 (B)

Prevalence Index = B/A = 3.42

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: U-BAO-012121-05

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/3	100	/				Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

US Department of Energy property does not allow digging past 12"

Wetland AS-004

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/21/2021

Applicant/Owner: AEP State: OH Sampling Point: W-BAO-012121-02

Investigator(s): BAO, JFW Section, Township, Range: S 6 T 4N R 22W

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.01608 Long: -83.00787 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland at toe of slope next to road. Drains to culvert that feeds S-BAO-012121-01. Vegetation is regularly mowed.

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 4.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 4.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-BAO-012121-02

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Mimulus ringens	20	N	OBL
2. Juncus effusus	30	Y	FACW
3. Ludwigia alternifolia	5	N	FACW
4. Solidago canadensis	30	Y	FACU
5. Epilobium coloratum	10	N	FACW
6. Microstegium vimineum	10	N	FAC
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		

50% of total cover: 63 20% of total cover: 25

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	45	x 2 =	90
FAC species	10	x 3 =	30
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	105 (A)		260 (B)

Prevalence Index = B/A = 2.48

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

Partly mowed

SOIL

Sampling Point: W-BAO-012121-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 5/2	80	10YR 6/6	15	C	M		
0 – 10			10YR 5/8	5	C	PL	Silty clay loam	
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

US Department of Energy property does not allow digging past 12"

Upland AS-004

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/21/2021

Applicant/Owner: AEP State: OH Sampling Point: U-BAO-012121-02

Investigator(s): BAO, JFW Section, Township, Range: S 6 T 4N R 22W

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.01607 Long: -83.00783 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland point associated with W-BAO-012121-02. Vegetation has been mowed

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-BAO-012121-02

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Andropogon virginicus	10	N	FACU
2. Rubus allegheniensis	10	N	FACU
3. Schedonorus arundinaceus	70	Y	FACU
4. Solidago canadensis	10	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: U-BAO-012121-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 8	10YR 6/4	70	10YR 6/8	25	C	M	Silty clay loam	
0 – 8	/		2.5Y 6/1	5	C	M	Silty clay	texture Silty clay loam
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): Yes

Type: Rocky

Depth (inches): 8

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

US Department of Energy property does not allow digging past 12"

Wetland AS-005

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/21/2021

Applicant/Owner: AEP State: OH Sampling Point: W-BAO-012121-01

Investigator(s): BAO, JFW Section, Township, Range: S 18 T 4N R 21 W

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.01494 Long: -83.00551 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes _____	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland formed from former construction area. Concrete foundations throughout.

Soils were not obtained due to US DOE restrictions on digging in the area. Assumed hydric due to strong vegetative and hydrologic indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 2.00
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-BAO-012121-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1. Salix nigra	5	Y	OBL
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 3 20% of total cover: 1

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Typha angustifolia	90	Y	OBL
2. Scirpus atrovirens	5	N	OBL
3. Juncus canadensis	20	N	OBL
4. Scirpus cyperinus	5	N	FACW
5. Andropogon virginicus	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	125 = Total Cover		

50% of total cover: 63 20% of total cover: 25

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	130 (A)		150 (B)

Prevalence Index = B/A = 1.15

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: W-BAO-012121-01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
–								
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** _____

Remarks:

Soils were not obtained due to US DOE restrictions on digging in the area. Assumed hydric due to strong vegetative and hydrologic indicators.

Upland AS-005

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/21/2021

Applicant/Owner: AEP State: OH Sampling Point: U-BAO-012121-01

Investigator(s): BAO, JFW Section, Township, Range: S 18 T 4N R 21 W

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.01474 Long: -83.00554 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland point associated with Wetland AS-005 (W-BAO-012121-01). Soil sample was unable to be observed due to US DOE restrictions in area due to various underground electrical wires

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-BAO-012121-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Andropogon gerardii	40	Y	FAC
2. Erigeron annuus	20	Y	FACU
3. Daucus carota	20	Y	UPL
4. Setaria pumila	10	N	FAC
5. Trifolium repens	10	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	30	x 4 =	120
UPL species	20	x 5 =	100
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

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

SOIL Sampling Point: U-BAO-012121-01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
–								
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): Yes

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Soil sample was unable to be observed due to US DOE restrictions in area. Soils estimated due to restriction based on relative topography and plant species.

Wetland AS-006

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/21/2021

Applicant/Owner: AEP State: OH Sampling Point: W-BAO-012121-04

Investigator(s): BAO, JFW Section, Township, Range: S 7 T 4N R 22W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.01328 Long: -83.01067 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland fed by a culvert and drains to Pond AS-001.

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 1.00

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-BAO-012121-04

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Platanus occidentalis	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	30	Y	FACW
2. Phalaris arundinacea	60	Y	FACW
3. Dichanthelium clandestinum	10	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		250 (B)

Prevalence Index = B/A = 2.08

Hydrophytic Vegetation Indicators:

- [X] 1 - Rapid Test for Hydrophytic Vegetation
- [X] 2 - Dominance Test is >50%
- [X] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL Sampling Point: W-BAO-012121-04

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/2	90	10YR 6/8	10	C	M	Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

US Department of Energy property does not allow digging past 12"

Upland AS-006

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/21/2021

Applicant/Owner: AEP State: OH Sampling Point: U-BAO-012121-04

Investigator(s): BAO, JFW Section, Township, Range: S 7 T 4N R 22W

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.01329 Long: -83.01060 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland point associated with W-BAO-012121-04

vegetation mowed

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-BAO-012121-04

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	30	Y	FAC
2. Allium canadense	10	N	FACU
3. Setaria pumila	10	N	FAC
4. Poa sp.	50	Y	
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	50 (A)		160 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: U-BAO-012121-04

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/3	80	10YR 4/6	20	C	M	Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

US Department of Energy property does not allow digging past 12"

Wetland AS-007

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/22/2021

Applicant/Owner: AEP State: OH Sampling Point: W-BAO-012221-01

Investigator(s): BAO, JFW Section, Township, Range: S 7 T 4N R 22W

Landform (hillslope, terrace, etc.): Gulch or Gully Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.01074 Long: -83.01210 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM linear wetland in maintained transmission line ROW, between two built up mounds

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 2.00
Water Table Present?	Yes X	No _____	Depth (inches): 5.00
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-BAO-012221-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Scirpus cyperinus	10	N	FACW
2. Equisetum hyemale	10	N	FACW
3. Juncus effusus	30	Y	FACW
4. Eupatorium perfoliatum	20	Y	FACW
5. Cyperus esculentus	10	N	FACW
6. Carex cristatella	10	N	FACW
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		

50% of total cover: 45 20% of total cover: 18

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		180 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: W-BAO-012221-01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/2	90	5YR 4/6	10			Silty clay	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

US Department of Energy property does not allow digging past 12"

Upland AS-007

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/22/2021

Applicant/Owner: AEP State: OH Sampling Point: U-BAO-012221-01

Investigator(s): BAO, JFW Section, Township, Range: S 7 T 4N R 22W

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.01056 Long: -83.01210 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland point associated with W-BAO-012221-01

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-BAO-012221-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Asclepias syriaca	10	N	FACU
2. Pycnanthemum virginianum	10	N	FAC
3. Setaria pumila	30	Y	FAC
4. Equisetum hyemale	5	N	FACW
5. Schedonorus arundinaceus	60	Y	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 58	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	40	x 3 =	120
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	115 (A)		410 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: U-BAO-012221-01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/3	70	10YR 5/6	30	C	M	Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

US Department of Energy property does not allow digging past 12"

Wetland AS-008

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/22/2021

Applicant/Owner: AEP State: OH Sampling Point: W-BAO-012221-02

Investigator(s): BAO, JFW Section, Township, Range: S 7 T 4N R 22W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.00827 Long: -83.01237 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland in t-line ROW

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 4.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-BAO-012221-02

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Eupatorium perfoliatum	20	N	FACW
2. Typha angustifolia	30	Y	OBL
3. Mimulus ringens	10	N	OBL
4. Dichanthelium clandestinum	20	N	FAC
5. Juncus effusus	10	N	FACW
6. Carex squarrosa	30	Y	FACW
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	60	x 2 =	120
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		220 (B)

Prevalence Index = B/A = 1.83

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: W-BAO-012221-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/2		7.5YR 4/6	10	C	PL	silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

US Department of Energy property does not allow digging past 12"

Upland AS-008

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Arboles Station and Transmission Lines Project City/County: Pike County Sampling Date: 01/22/2021

Applicant/Owner: AEP State: OH Sampling Point: U-BAO-012221-02

Investigator(s): BAO, JFW Section, Township, Range: S 7 T 4N R 22W

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.00835 Long: -83.01239 Datum: WGS 84

Soil Map Unit Name: UoA: Urbanland-Omulga complex, 0 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland point associated with W-BAO-012221-02

HYDROLOGY

Wetland Hydrology Indicators:

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)
- ☐ 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)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-BAO-012221-02

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	40	Y	FACU
2. Dichanthelium clandestinum	50	Y	FAC
3. Setaria pumila	10	N	FAC
4. Asclepias syriaca	10	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	110 (A)		380 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: U-BAO-012221-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/3	70	10YR 5/6	30	C	M	Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

US Department of Energy property does not allow digging past 12"

Appendix C
Ohio Rapid Assessment Method for Wetlands (ORAM) Forms

ORAM v. 5.0 Field Form Quantitative Rating

Wetland AS-001

Site: AEP Arboles Station and T-Lines, W-BAO-012021-01	**Rater(s):** B Otto; J Wessel	**Date:** 01/20/2021

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

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

Metric 2. Upland buffers and surrounding land use.

4.0 (max 14 pts.) | 5.0 (subtotal)

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

7.0 (max 30 pts.) | 12.0 (subtotal)

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] 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 only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [x] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

7.0 (max 20 pts.) | 19.0 (subtotal)

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

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] 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)
- [x] Poor to fair (2)
- [ ] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

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

19.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Arboles Station and T-Lines, W-BAO-012021-01	**Rater(s):** B Otto; J Wessel	**Date:** 01/20/2021

19.0
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 19.0 subtotal

Check all that apply and score as indicated.

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

Metric 6. Plant communities, interspersion, microtopography.

-3 max 20 pts. | 16 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [✓] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

16 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Wetland AS-002

Site: AEP Arboles Station and T-Lines, W-BAO-012021-02	**Rater(s):** B Otto; J Wessel	**Date:** 01/20/2021

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. / subtotal

Select one size class and assign score.

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

7.0 / 7.0 Metric 2. Upland buffers and surrounding land use.

max 14 pts. / subtotal

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

6.0 / 13.0 Metric 3. Hydrology.

max 30 pts. / subtotal

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] 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 only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [ ] other_____

6.0 / 19.0 Metric 4. Habitat Alteration and Development.

max 20 pts. / subtotal

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

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [x] 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)
- [x] Poor to fair (2)
- [ ] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

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

19.0

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Arboles Station and T-Lines, W-BAO-012021-02	**Rater(s):** B Otto; J Wessel	**Date:** 01/20/2021

19.0
subtotal first page

0.0 (max 10 pts.) | 19.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

2 (max 20 pts.) | 21 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

21 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Wetland AS-003

Site: AEP Arboles Station and T-Lines, W-BAO-012121-05	**Rater(s):** B Otto; J Wessel	**Date:** 01/21/2021

1.0 | 1.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

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

7.0 | 8.0 Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

10.0 | 18.0 Metric 3. Hydrology.

max 30 pts. | subtotal

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] 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 only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other ROW maintenance and construction; at ju

8.0 | 26.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

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

- [ ] None or none apparent (4)
- [x] 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)
- [x] Poor to fair (2)
- [ ] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

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

26.0

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Arboles Station and T-Lines, W-BAO-012121-05	**Rater(s):** B Otto; J Wessel	**Date:** 01/21/2021

26.0
subtotal first page

0.0 (max 10 pts.) | 26.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

3 (max 20 pts.) | 29 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

29 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Wetland AS-004

Site: AEP Arboles Station and T-Lines, W-BAO-012121-02	**Rater(s):** B Otto; J Wessel	**Date:** 01/21/2021

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

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

Metric 2. Upland buffers and surrounding land use.

2 (max 14 pts.) | 3.0 (subtotal)

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [x] 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)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

6.0 (max 30 pts.) | 9.0 (subtotal)

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] 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 only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [x] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

8.0 (max 20 pts.) | 17.0 (subtotal)

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

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] 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)
- [x] 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)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

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

17.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Arboles Station and T-Lines, W-BAO-012121-02	**Rater(s):** B Otto; J Wessel	**Date:** 01/21/2021

17.0
subtotal first page

0.0 (max 10 pts.) | 17.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

4 (max 20 pts.) | 21 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

21 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Wetland AS-005

Site: AEP Arboles Station and T-Lines, W-BAO-012121-01	**Rater(s):** B Otto; J Wessel	**Date:** 01/21/2021

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

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

Metric 2. Upland buffers and surrounding land use.

2 (max 14 pts.) | 3.0 (subtotal)

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

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

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

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

Metric 3. Hydrology.

8.0 (max 30 pts.) | 11.0 (subtotal)

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

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

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 only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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

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

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [✓] filling/grading
- [✓] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 17.0 (subtotal)

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

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

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

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

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

17.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Arboles Station and T-Lines, W-BAO-012121-01	**Rater(s):** B Otto; J Wessel	**Date:** 01/21/2021

17.0
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 17.0 subtotal

Check all that apply and score as indicated.

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

Metric 6. Plant communities, interspersion, microtopography.

-2 max 20 pts. | 15 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [✓] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

15 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Wetland AS-006

Site: AEP Arboles Station and T-Lines, W-BAO-012121-04	**Rater(s):** B Otto; J Wessel	**Date:** 01/21/2021

Metric 1. Wetland Area (size).

2.0 (max 6 pts.) | 2.0 (subtotal)

Select one size class and assign score.

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

Metric 2. Upland buffers and surrounding land use.

2.0 (max 14 pts.) | 4.0 (subtotal)

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [x] 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)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

15.0 (max 30 pts.) | 19.0 (subtotal)

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

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

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [x] 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 only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] ditch
- [ ] tile
- [x] dike
- [ ] weir
- [x] stormwater input
- [x] point source (nonstormwater)
- [x] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

9.0 (max 20 pts.) | 28.0 (subtotal)

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

- [ ] None or none apparent (4)
- [x] 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)
- [x] 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)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

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

28.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Arboles Station and T-Lines, W-BAO-012121-04	**Rater(s):** B Otto; J Wessel	**Date:** 01/21/2021

28.0
subtotal first page

0.0 (max 10 pts.) | 28.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

4 (max 20 pts.) | 32 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [✓] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

32 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

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ORAM v. 5.0 Field Form Quantitative Rating

Wetland AS-007

Site: AEP Arboles Station and T-Lines, W-BAO-012221-01	**Rater(s):** B Otto; J Wessel	**Date:** 01/22/2021

1.0 | 1.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

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

7.0 | 8.0 Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

8.0 | 16.0 Metric 3. Hydrology.

max 30 pts. | subtotal

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] 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 only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [x] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

7.0 | 23.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

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

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] 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)
- [x] Poor to fair (2)
- [ ] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

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

23.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Arboles Station and T-Lines, W-BAO-012221-01	**Rater(s):** B Otto; J Wessel	**Date:** 01/22/2021

23.0
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 23.0 subtotal

Check all that apply and score as indicated.

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

Metric 6. Plant communities, interspersion, microtopography.

-1 max 20 pts. | 22 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [✓] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

22 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Wetland AS-008

Site: AEP Arboles Station and T-Lines, W-BAO-012221-02	**Rater(s):** B Otto; J Wessel	**Date:** 01/22/2021

1.0 | 1.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

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

7.0 | 8.0 Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9.0 | 17.0 Metric 3. Hydrology.

max 30 pts. | subtotal

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] 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 only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [x] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

8.0 | 25.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

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

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] 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)
- [x] 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)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

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

25.0

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Arboles Station and T-Lines, W-BAO-012221-02	**Rater(s):** B Otto; J Wessel	**Date:** 01/22/2021

25.0
subtotal first page

0.0 | 25.0
max 10 pts. | subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

2 | 27
max 20 pts. | subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [✓] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

27 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

Appendix D
Primary Headwater Habitat Evaluation Index (HHEI) Stream Data Forms

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 17

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012021-01**
SITE NUMBER: _____ RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.001
LENGTH OF STREAM REACH (ft): 200 LAT: 39.02297 LONG: -83.01206 RIVER MILE: _____
DATE: 01/20/2021 SCORER: BAO, JFW COMMENTS: Ephemeral

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 ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY
May not have existed prior to modification. Substation drainage

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 1

HHEI Metric Points
Substrate Max = 40: **7** (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 1.00

Pool Depth Max = 30: **5**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 3.00

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

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

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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)

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: Little Beaver Creek Distance from Evaluated Stream 0.80 mile

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

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

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

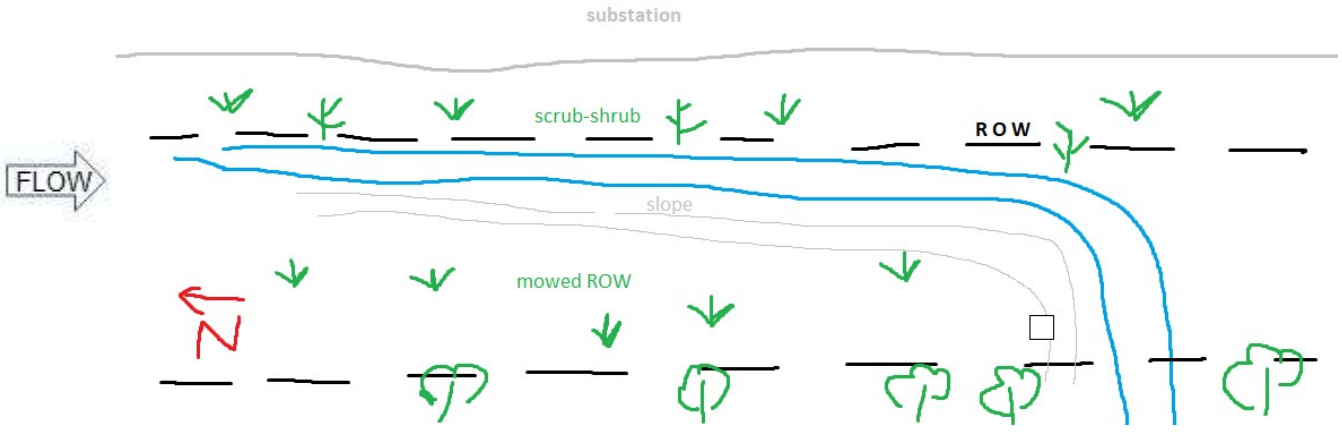
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 27

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012021-02**
SITE NUMBER: ____ RIVER BASIN: **05060002** RIVER CODE: ____ DRAINAGE AREA (mi²): **0.010**
LENGTH OF STREAM REACH (ft): **129** LAT: **39.02164** LONG: **-83.01314** RIVER MILE: ____
DATE: **01/20/2021** SCORER: **BAO** COMMENTS: **Ephemeral**

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 ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Riparian cleared

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **25%**
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **12** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **5**

HHEI Metric Points
Substrate Max = 40: **17**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: ____ MAXIMUM POOL DEPTH (inches): **1.00**

Pool Depth Max = 30: **5**

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

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

COMMENTS: ____ AVERAGE BANKFULL WIDTH (feet): **3.00**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

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

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

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

☐	None	☐	1.0	☑	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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)

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: Little Beaver Creek Distance from Evaluated Stream 0.82 mile

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

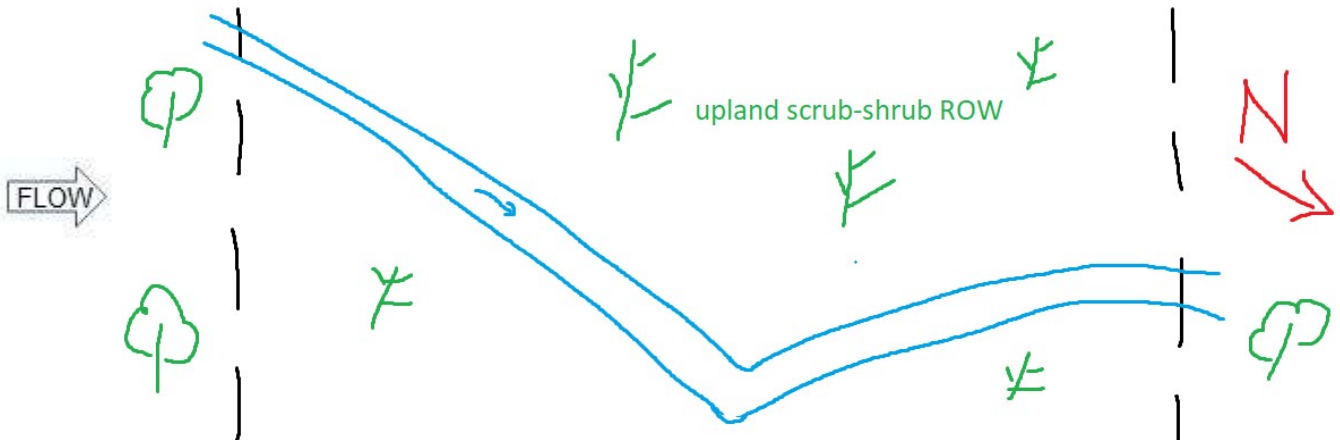
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 39

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012021-03**
SITE NUMBER: _____ RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.020
LENGTH OF STREAM REACH (ft): 200 LAT: 39.02134 LONG: -83.01349 RIVER MILE: _____
DATE: 01/20/2021 SCORER: BAO COMMENTS: Intermittent

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 ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY
Culverted and riparian cleared

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	20%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	20%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **19**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 3.00

Pool Depth Max = 30: **15**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 2.50

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Also within ROW

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

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: _____

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

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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)

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: Little Beaver Creek Distance from Evaluated Stream 0.83 mile

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

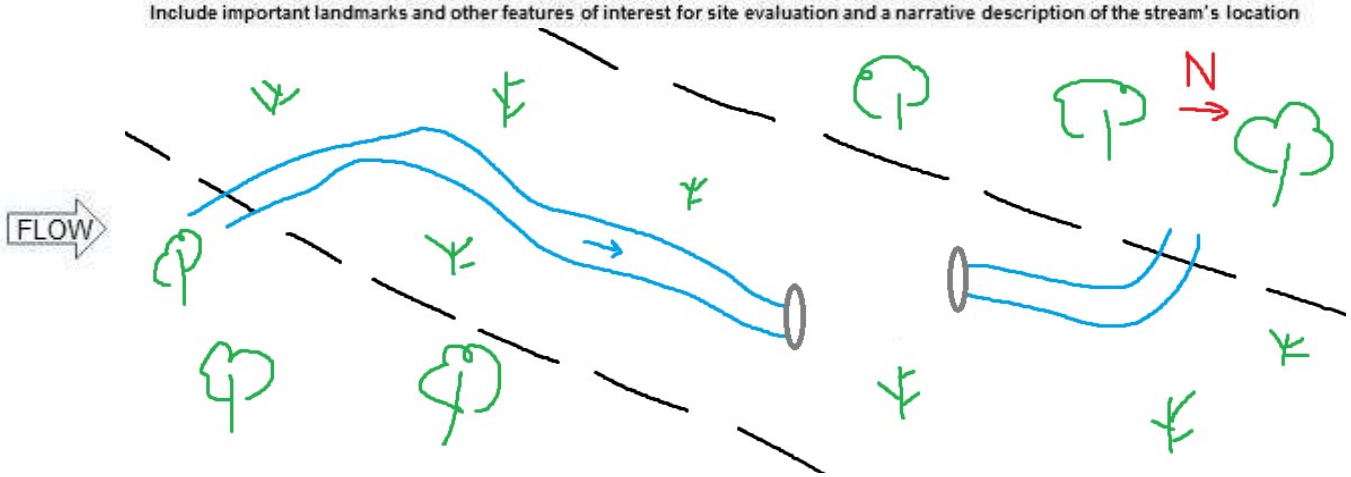
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 17

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012021-04**
SITE NUMBER: _____ RIVER BASIN: **05060002** RIVER CODE: _____ DRAINAGE AREA (mi²): **0.001**
LENGTH OF STREAM REACH (ft): **200** LAT: **39.02073** LONG: **-83.01389** RIVER MILE: _____
DATE: **01/20/2021** SCORER: **BAO, JFW** COMMENTS: **Intermittent**

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 ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY
Cleared riparian, culverted

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	30%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	40%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **0%**
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **3** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points
Substrate Max = 40: **7** (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): **1.50**

Pool Depth Max = 30: **5**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): **2.00**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: _____

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

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent

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

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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)

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: Little Beaver Creek Distance from Evaluated Stream 0.88 mile

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 60%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

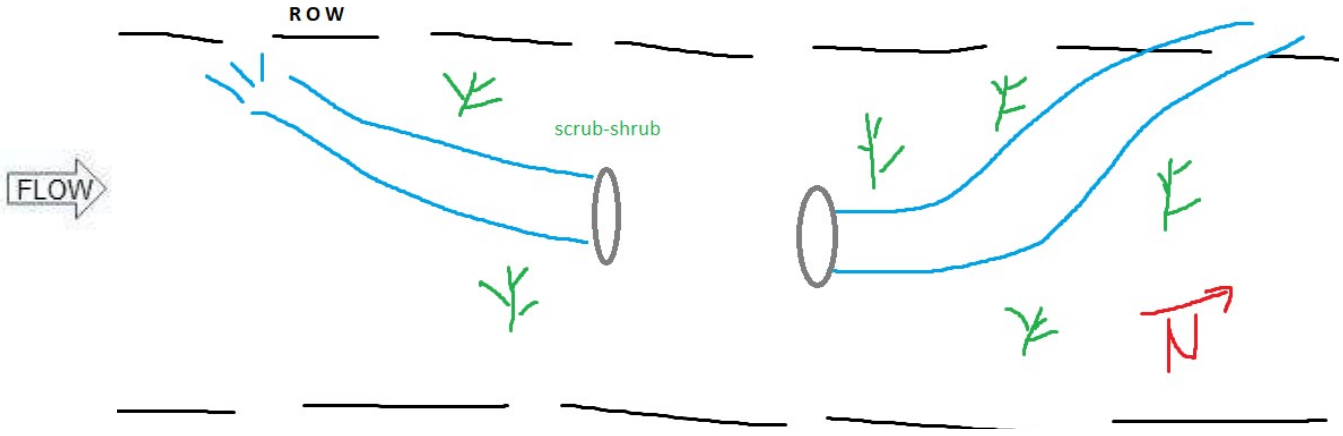
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 46

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012021-05**
SITE NUMBER: _____ RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.067
LENGTH OF STREAM REACH (ft): 77 LAT: 39.01782 LONG: -83.02038 RIVER MILE: _____
DATE: 01/20/2021 SCORER: BAO COMMENTS: Intermittent

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 ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY
Culvert; 4wheel trails

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 16 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 4.00

Pool Depth Max = 30: 25

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 1.00

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent as confirmed by NHD

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

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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)

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: Scioto River Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

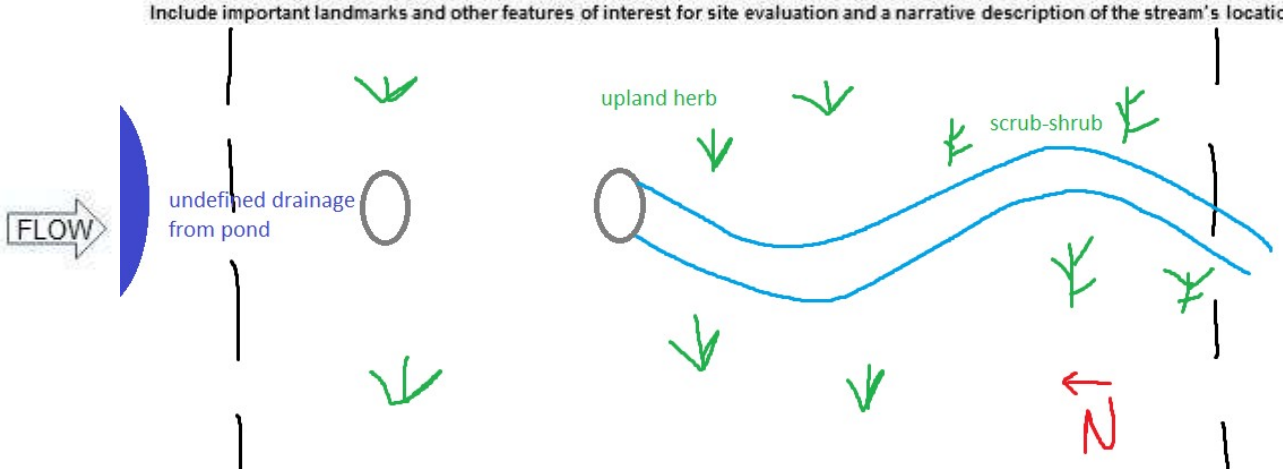
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 16

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012021-06**
SITE NUMBER: _____ RIVER BASIN: **05060002** RIVER CODE: _____ DRAINAGE AREA (mi²): **0.020**
LENGTH OF STREAM REACH (ft): 200 LAT: **39.01786** LONG: **-83.01771** RIVER MILE: _____
DATE: **01/20/2021** SCORER: **BAO, JFW** COMMENTS: **Ephemeral**

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 ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Culverted; access road crosses

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	25%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	70%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	5%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **0%**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **3** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **3**

HHEI Metric Points
Substrate Max = 40: **6**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): **1.00**

Pool Depth Max = 30: **5**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): **1.00**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☐	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☑	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☑ Stream Flowing ☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial) ☐ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

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

☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☑ 0.5 ☐ 1.5 ☐ 2.5 ☐ >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)

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: Scioto River Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

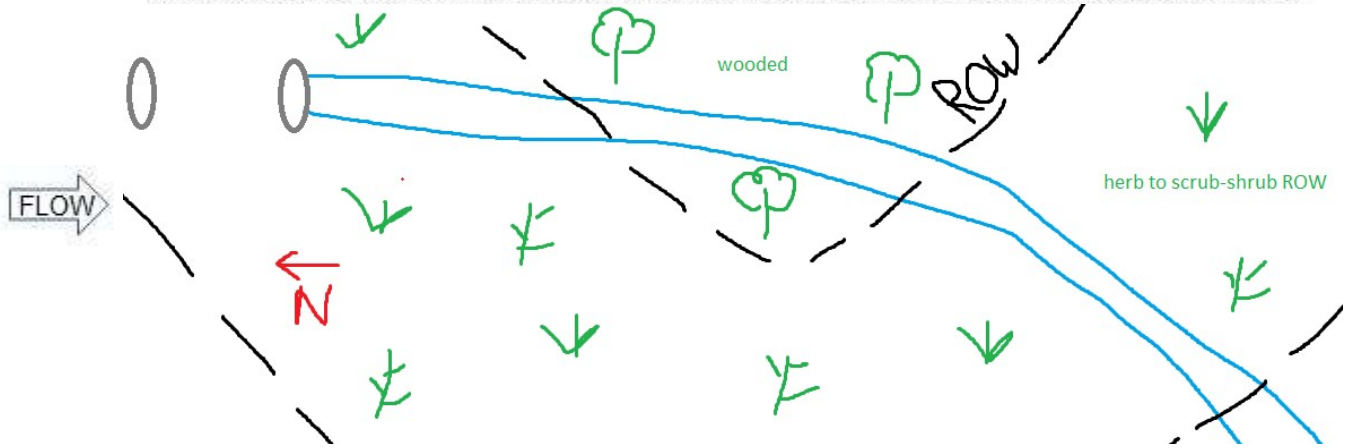
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 17

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012121-05**
SITE NUMBER: _____ RIVER BASIN: **05060002** RIVER CODE: _____ DRAINAGE AREA (mi²): **0.001**
LENGTH OF STREAM REACH (ft): **49** LAT: **39.01606** LONG: **-83.01361** RIVER MILE: _____
DATE: **01/21/2021** SCORER: **BAO** COMMENTS: **Ephemeral but portion underground**

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 ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY
Access road and soil disturbance throughout area

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	30%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	40%
☐	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **0%**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **3** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points
Substrate Max = 40: **7**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): **1.50**

Pool Depth Max = 30: **5**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): **1.00**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☑	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral with interstitial portion

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

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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)

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: Scioto River Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 60%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

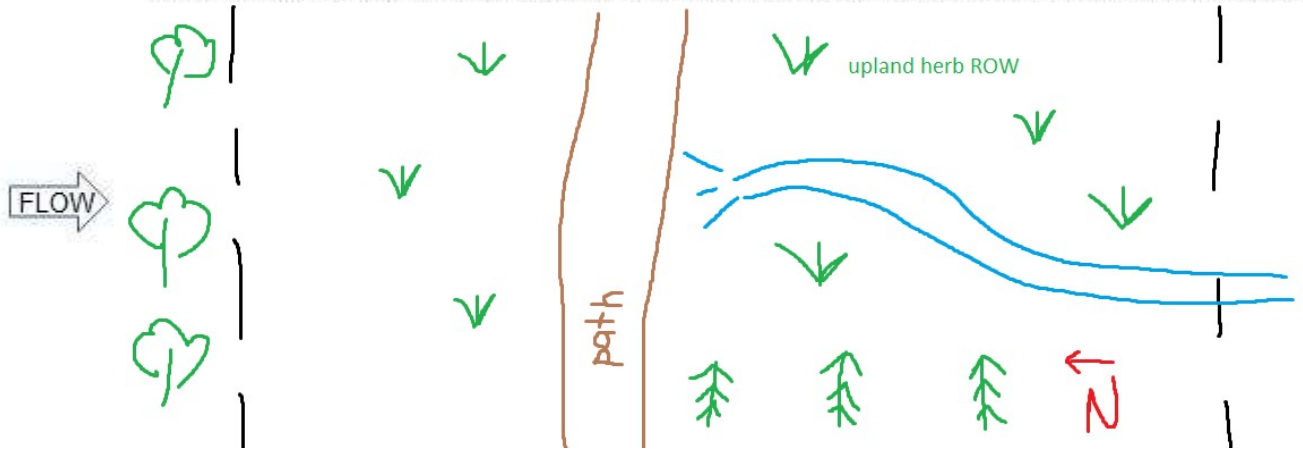
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 20

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012121-02**
SITE NUMBER: _____ RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.001
LENGTH OF STREAM REACH (ft): 137 LAT: 39.01602 LONG: -83.01001 RIVER MILE: _____
DATE: 01/21/2021 SCORER: JFW COMMENTS: Ephemeral

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 ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Upper riparian mowed

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☑ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	60%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 10 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 1.00

Pool Depth Max = 30: 5

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 1.00

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

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

☑	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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)

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: Big Run Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

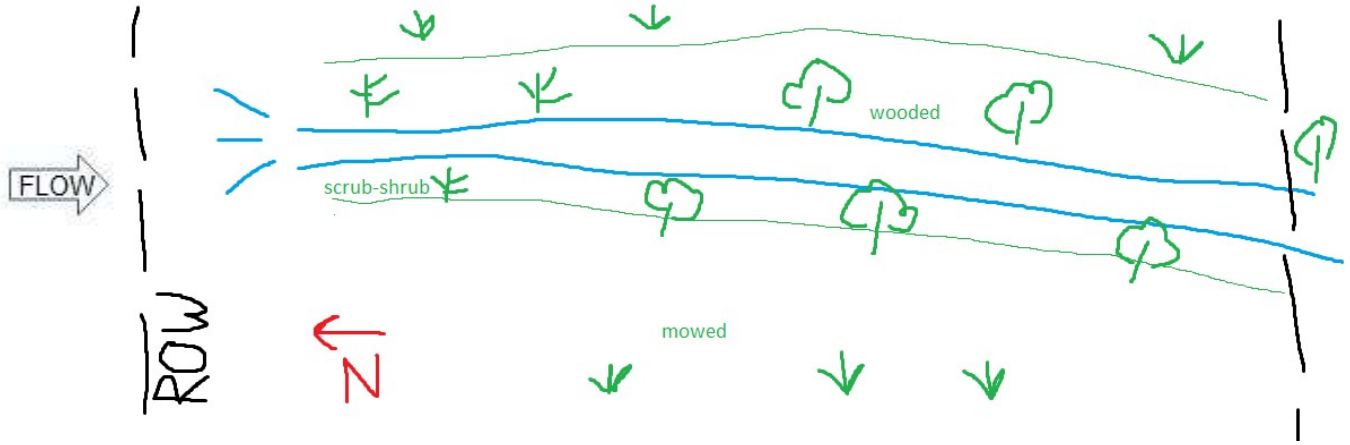
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 39

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012121-03**
SITE NUMBER: _____ RIVER BASIN: **05060002** RIVER CODE: _____ DRAINAGE AREA (mi²): **0.020**
LENGTH OF STREAM REACH (ft): **200** LAT: **39.01578** LONG: **-83.00876** RIVER MILE: _____
DATE: **01/21/2021** SCORER: **BAO** COMMENTS: **Intermittent**

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 ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY
Channelization

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	35%	☐ ☐	MUCK [0 pts]	0%
☐ ☑	SAND (<2 mm) [6 pts]	30%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **25%**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **15** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points
Substrate Max = 40: **19**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): **3.00**

Pool Depth Max = 30: **15**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): **3.00**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☑	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: _____

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

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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)

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: Scioto River Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

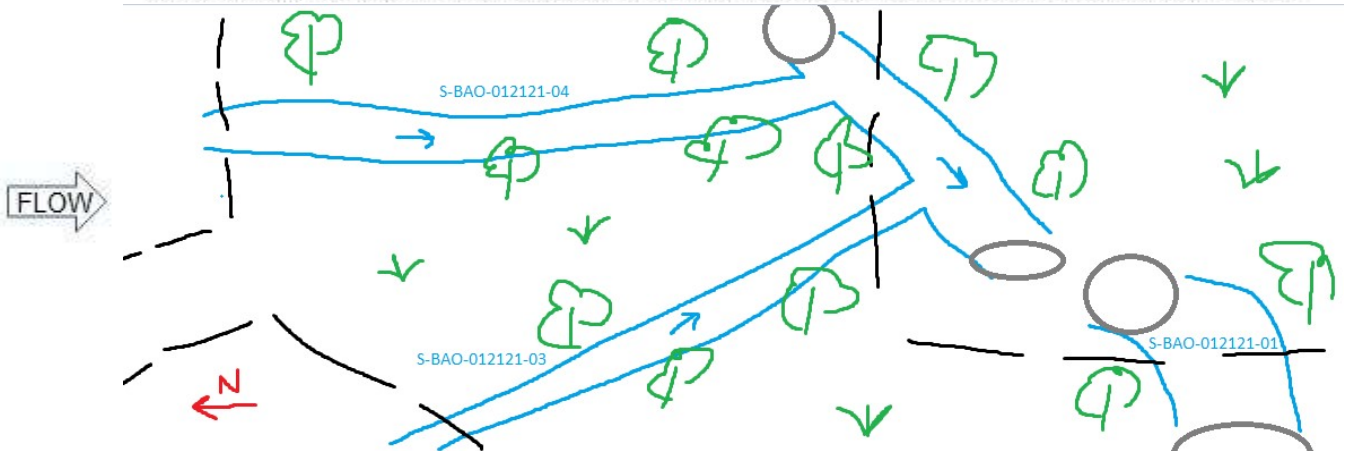
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 28

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012121-04**
SITE NUMBER: _____ RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.001
LENGTH OF STREAM REACH (ft): 190 LAT: 39.01578 LONG: -83.00865 RIVER MILE: _____
DATE: 01/21/2021 SCORER: JFW COMMENTS: Ephemeral

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 ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Upper riparian mowed

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 18 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 1.00

Pool Depth Max = 30: 5

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 2.00

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

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

☐	None	☐	1.0	☐	2.0	☑	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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)

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: Big Run Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

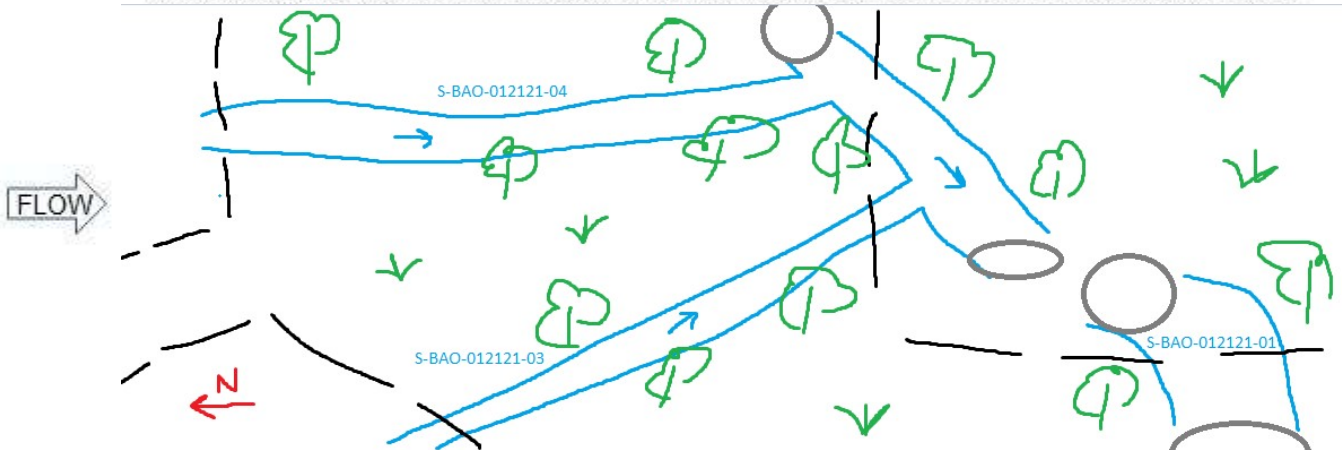
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 54

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012121-01**
SITE NUMBER: _____ RIVER BASIN: **05060002** RIVER CODE: _____ DRAINAGE AREA (mi²): **0.060**
LENGTH OF STREAM REACH (ft): **50** LAT: **39.01574** LONG: **-83.00873** RIVER MILE: _____
DATE: **01/21/2021** SCORER: **BAO** COMMENTS: **Intermittent**

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 ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY
Culverts, channelization, and artificial substrate

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☑ ☐	ARTIFICIAL [3 pts]	70%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **0%**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **6** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **3**

HHEI Metric Points
Substrate Max = 40: **9**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Culvert plunge pools throughout were not considered — MAXIMUM POOL DEPTH (inches): **4.00**

Pool Depth Max = 30: **25**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): **5.00**

Bankfull Width Max=30: **20**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: _____

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

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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)

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: Scioto River Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

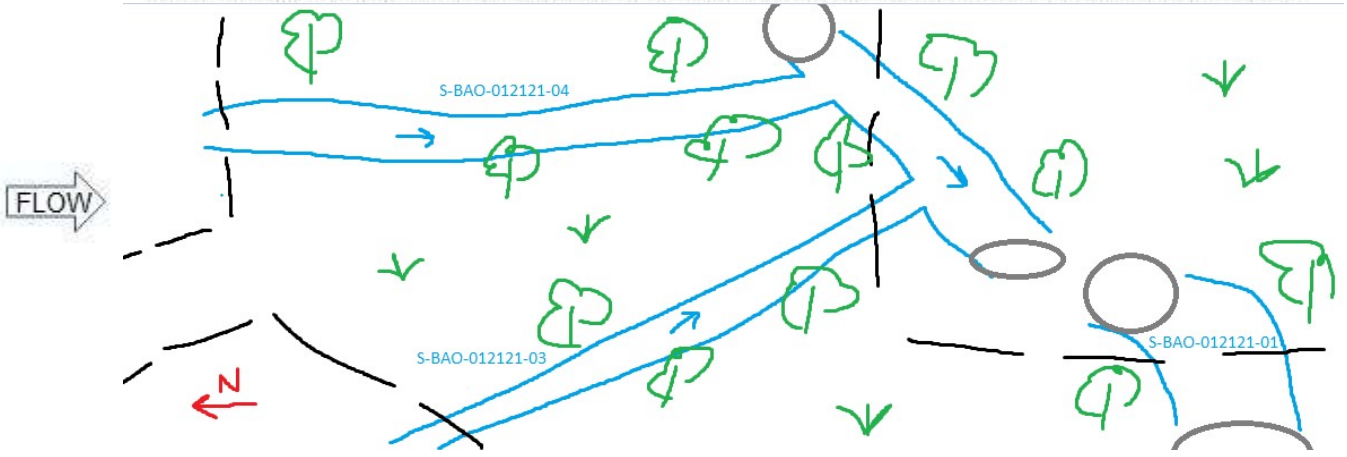
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 71

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012221-01**
SITE NUMBER: _____ RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.020
LENGTH OF STREAM REACH (ft): 200 LAT: 39.01444 LONG: -83.01204 RIVER MILE: _____
DATE: 01/22/2021 SCORER: BAO COMMENTS: Ephemeral; high gradient

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 ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Stream begins definition at culvert; high gradient

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	10%
☑	BOULDER (>256 mm) [16 pts]	25%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	15%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	15%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	25%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	10%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 55%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 25 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 31 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 5.00

Pool Depth Max = 30: 25

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 4.00

Bankfull Width Max=30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

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

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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)

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: Scioto River Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

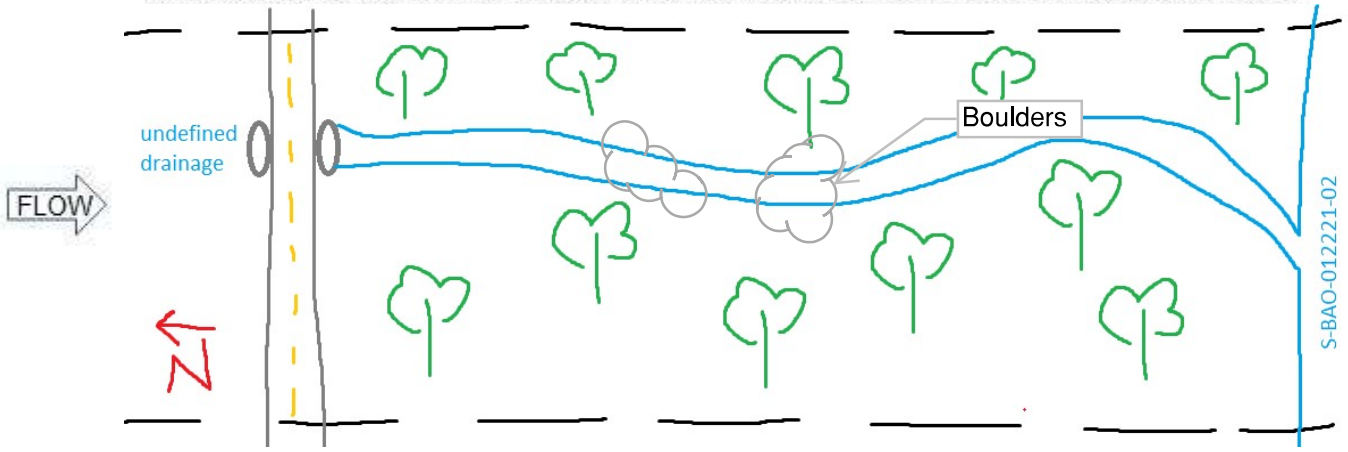
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 77

SITE NAME/LOCATION: **AEP Arboles Station and Transmission Lines Project, S-BAO-012221-02**
SITE NUMBER: _____ RIVER BASIN: **05060002** RIVER CODE: _____ DRAINAGE AREA (mi²): **0.590**
LENGTH OF STREAM REACH (ft): **200** LAT: **39.01359** LONG: **-83.01251** RIVER MILE: _____
DATE: **01/22/2021** SCORER: **BAO, JFW** COMMENTS: **Perennial**

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 ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Culverted at head

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	10%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	10%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **50%**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **21** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **6**

HHEI Metric Points
Substrate Max = 40: **27**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): **12**

Pool Depth Max = 30: **20**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): **15**

Bankfull Width Max=30: **30**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: _____

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

☐	None	☐	1.0	☑	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☑ Yes ☐ No QHEI Score 59.50 (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Scioto River Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: NRCS Soil Map Stream Order:

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes:

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results):

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

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

Additional comments/description of pollution impacts:

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known):

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known):

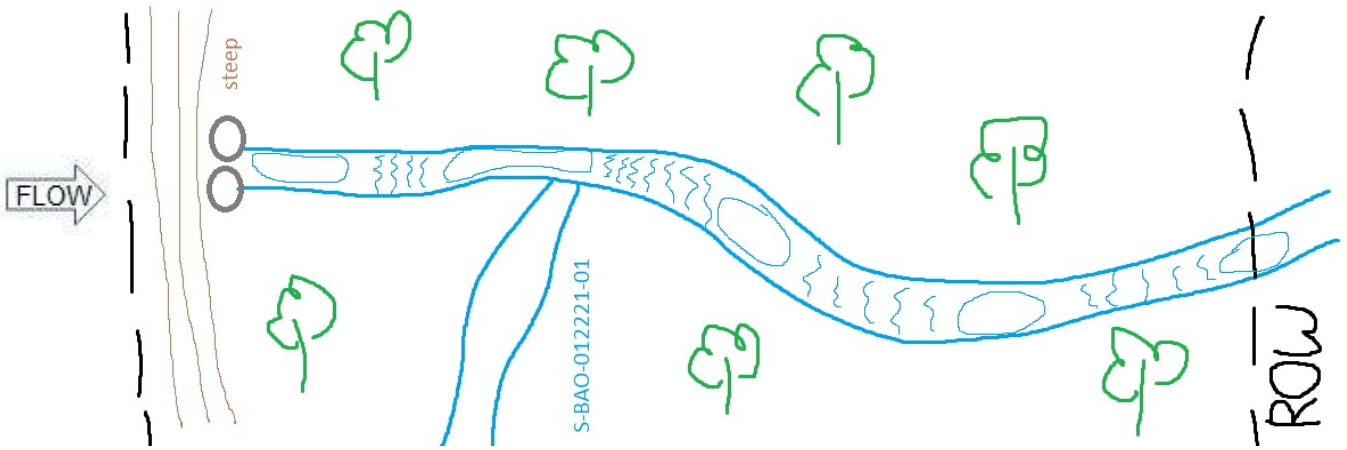
Salamanders Observed? (Y/N) N Species observed (if known):

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known):

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 76

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012221-03**
SITE NUMBER: _____ RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.220
LENGTH OF STREAM REACH (ft): 200 LAT: 39.01161 LONG: -83.01267 RIVER MILE: _____
DATE: 01/22/2021 SCORER: JFW COMMENTS: Intermittent

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 ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Culverted and formerly channelized

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	10%
☑	BOULDER (>256 mm) [16 pts]	25%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	15%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	15%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	25%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	10%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 25 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 31 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 6.00

Pool Depth Max = 30: 25

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 8

Bankfull Width Max=30: 20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☑	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: _____

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

☑ Stream Flowing ☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial) ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

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

☐ None ☑ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >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)

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: Scioto River — Distance from Evaluated Stream: >2 miles

☐ 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: Piketon, OH — NRCS Soil Map Page: _____ — NRCS Soil Map Stream Order: _____

County: Pike — Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y — Date of last precipitation: 01/16/21 — Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N — Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N — Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts:

Orange film on substrate

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N — Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) Y — Species observed (if known): _____

Salamanders Observed? (Y/N) N — Species observed (if known): _____

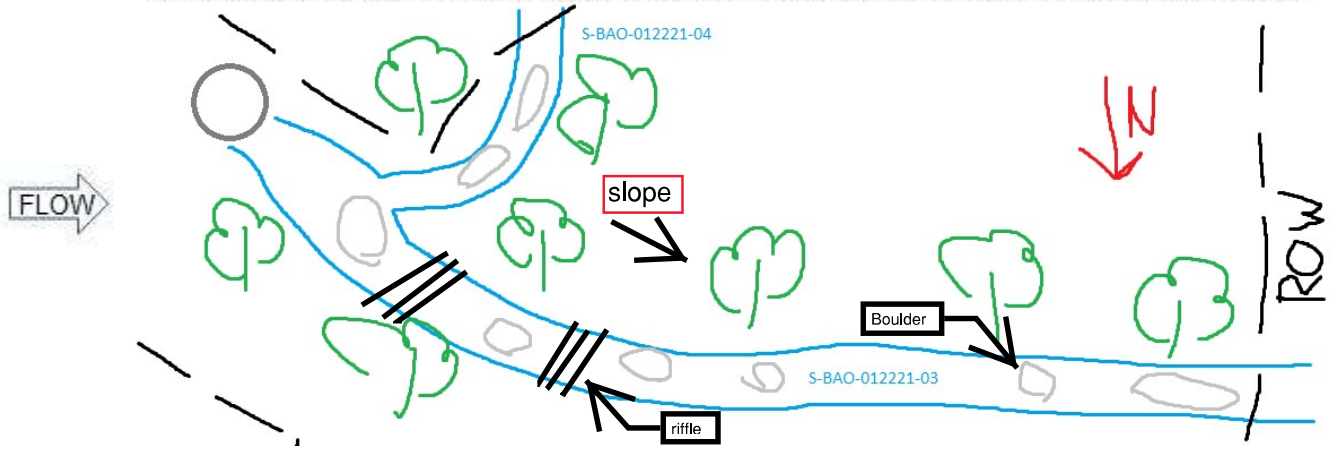
Aquatic Macroinvertebrates Observed? (Y/N) N — Species observed (if known): _____

Comments Regarding Biology:

One gray spotted frog observed

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 61

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012221-04**
SITE NUMBER: _____ RIVER BASIN: **05060002** RIVER CODE: _____ DRAINAGE AREA (mi²): **0.062**
LENGTH OF STREAM REACH (ft): **72** LAT: **39.01096** LONG: **-83.01204** RIVER MILE: _____
DATE: **01/22/2021** SCORER: **JFW** COMMENTS: **Intermittent**

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 ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Channelization from historic roadway construction

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	5%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☑	BEDROCK [16 pts]	50%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	5%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **60%**
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **25** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **6**

HHEI Metric Points
Substrate Max = 40: **31**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): **3.00**

Pool Depth Max = 30: **15**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): **4.00**

Bankfull Width Max=30: **15**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent

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

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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)

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: Scioto River Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

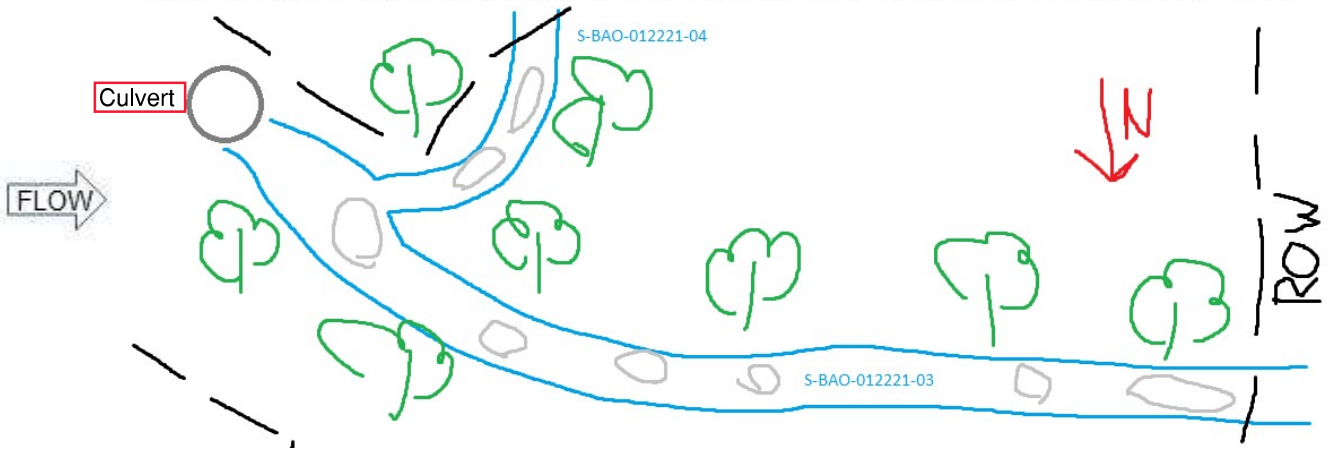
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 29

SITE NAME/LOCATION: **Arboles Station and Transmission Lines Project, S-BAO-012221-05**
SITE NUMBER: _____ RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.038
LENGTH OF STREAM REACH (ft): 199 LAT: 39.00896 LONG: -83.01198 RIVER MILE: _____
DATE: 01/22/2021 SCORER: BAO COMMENTS: Intermittent

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 ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY
Channelization and culvert

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☑	SAND (<2 mm) [6 pts]	30%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **19**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* 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]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 1.50

Pool Depth Max = 30: **5**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 2.00

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☑	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

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

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent

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

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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)

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: Scioto River Distance from Evaluated Stream >2 miles

☐ 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: Piketon, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Scioto Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/16/21 Quantity: 0.20

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

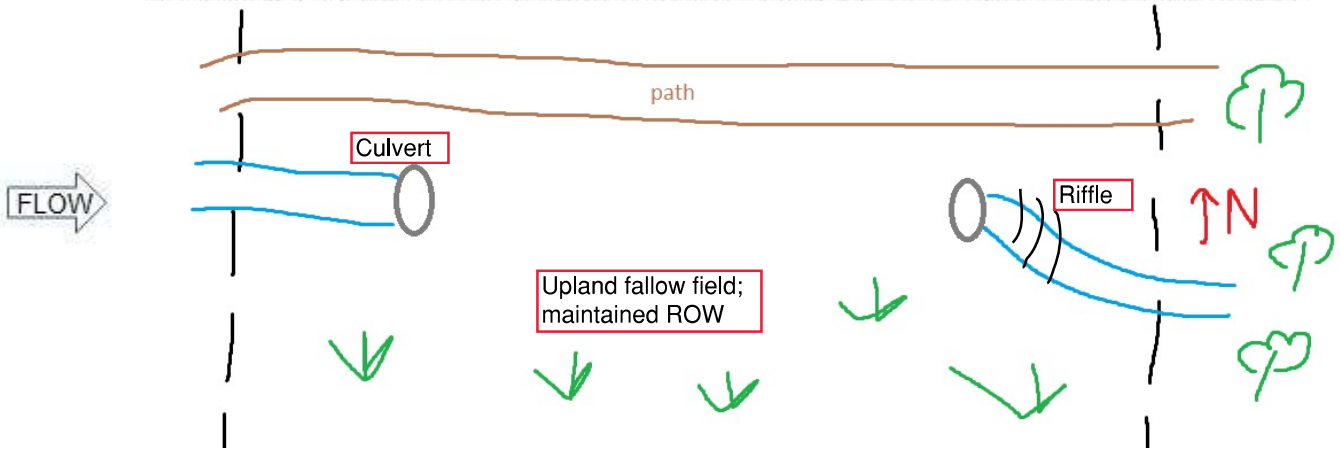
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Appendix E
Jacobs Open Water/Pond Data Forms

Jacobs

POND DATA SHEET

FEATURE ID: Pond AS-001 (P-BAO-012121-01)	**ASSOCIATED FEATURES:** Wetland AS-006 (W-BAO-012121-04), Stream AS-011 (S-BAO-012121-01), Stream AS-013 (S-BAO-012221-02)
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 01/21/2021	**CLIENT/PROJECT NAME:** AEP Arboles Station and Transmission Lines
INVESTIGATORS: Ben Otto/Jen Wessel	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Pike County	**IS THIS A MAPPED NWI FEATURE?:** No

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	24"
AVG. WIDTH (WATER SURFACE):	100'
APPROXIMATE SIZE:	0.21 acres in survey corridor, extends beyond western boundary of survey corridor.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Cloudy brown-green
PRIMARY SUBSTRATE (IF OBSERVED):	Silt
POTENTIAL HABITAT FOR:	Amphibians
SURROUNDING LAND USE:	Mowed commercial lawn
WETLAND FRINGE (IF PRESENT):	N/A

COMMENTS

Retention pond fed by Wetland AS-006 and Stream AS-011. Monk overflow outlet leads to culvert at head of Stream AS-013.

Appendix F
Representative Photographs

Site Photos Stream AS-001

Upstream

Downstream

Substrate

Site Photos Stream AS-002

Upstream

Downstream

Substrate

Site Photos Stream AS-003

Upstream

Downstream

Substrate

Site Photos Stream AS-004

Upstream

Downstream

Substrate

Site Photos Stream AS-005

Upstream

Downstream

Substrate

Site Photos Stream AS-006

Upstream

Downstream

Substrate

Site Photos Stream AS-007

Upstream

Downstream

Substrate

Site Photos Stream AS-008

Upstream

Downstream

Substrate

Site Photos Stream AS-009

Upstream

Downstream

Substrate

Site Photos Stream AS-010

Downstream

Substrate

Site Photos Stream AS-011

Upstream

Downstream

Substrate

Site Photos Stream AS-012

Downstream

Substrate

Upstream

Site Photos Stream AS-013

Upstream

Downstream

Substrate

Site Photos Stream AS-014

Upstream

Downstream

Substrate

Site Photos Stream AS-015

Upstream

Substrate

Downstream

Site Photos Stream AS-016

Upstream

Downstream

Site Photos Wetland AS-001

Soil

N

E

S

Site Photos Wetland AS-001

W

Site Photos Wetland AS-002

Soil

N

E

S

Site Photos Wetland AS-002

W

Site Photos Wetland AS-003

N

E

S

W

Site Photos Wetland AS-003

Soil

Site Photos Wetland AS-004

Soil

N

E

S

Site Photos Wetland AS-004

W

Site Photos Wetland AS-005

N

E

S

W

Site Photos Wetland AS-006

N

E

S

W

Site Photos Wetland AS-006

Soil

Site Photos	Wetland AS-007

N

E

S

W

Site Photos Wetland AS-007

Soil

Site Photos Wetland AS-008

N

E

S

W

Site Photos Wetland AS-008

Soil

Site Photos	Pond AS-001

W

N

Site Photos	Upland AS-001

Soil

N

Site Photos Upland AS-002

Soil

E

Site Photos Upland AS-003

Soil

N

Site Photos Upland AS-004

Soil

E

Site Photos Upland AS-005

Soil

N

Site Photos Upland AS-006

Soil

S

Site Photos Upland AS-007

Soil

S

Site Photos Upland AS-008

Soil

N

Appendix G
Documentation for State- and Federally Listed Species

Otto, Ben/CIN

From: Ohio, FW3 <ohio@fws.gov>
Sent: Monday, March 22, 2021 10:43 AM
To: Otto, Ben/CIN; Grant S Stuller
Cc: nathan.reardon@dnr.state.oh.us; Parsons, Kate
Subject: [EXTERNAL] AEP - Arboles Station Transmission Lines Project in Scioto Township, Pike County, Ohio

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994

TAILS# 03E15000-2021-TA-1017

Dear Mr. Otto,

The U.S Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found 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 breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet 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, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: Should the proposed project site contain trees ≥3 inches dbh, we recommend avoiding tree removal 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 removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared 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, a summer presence/absence survey may be conducted for Indiana bats. If Indiana bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field 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.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then 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 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. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

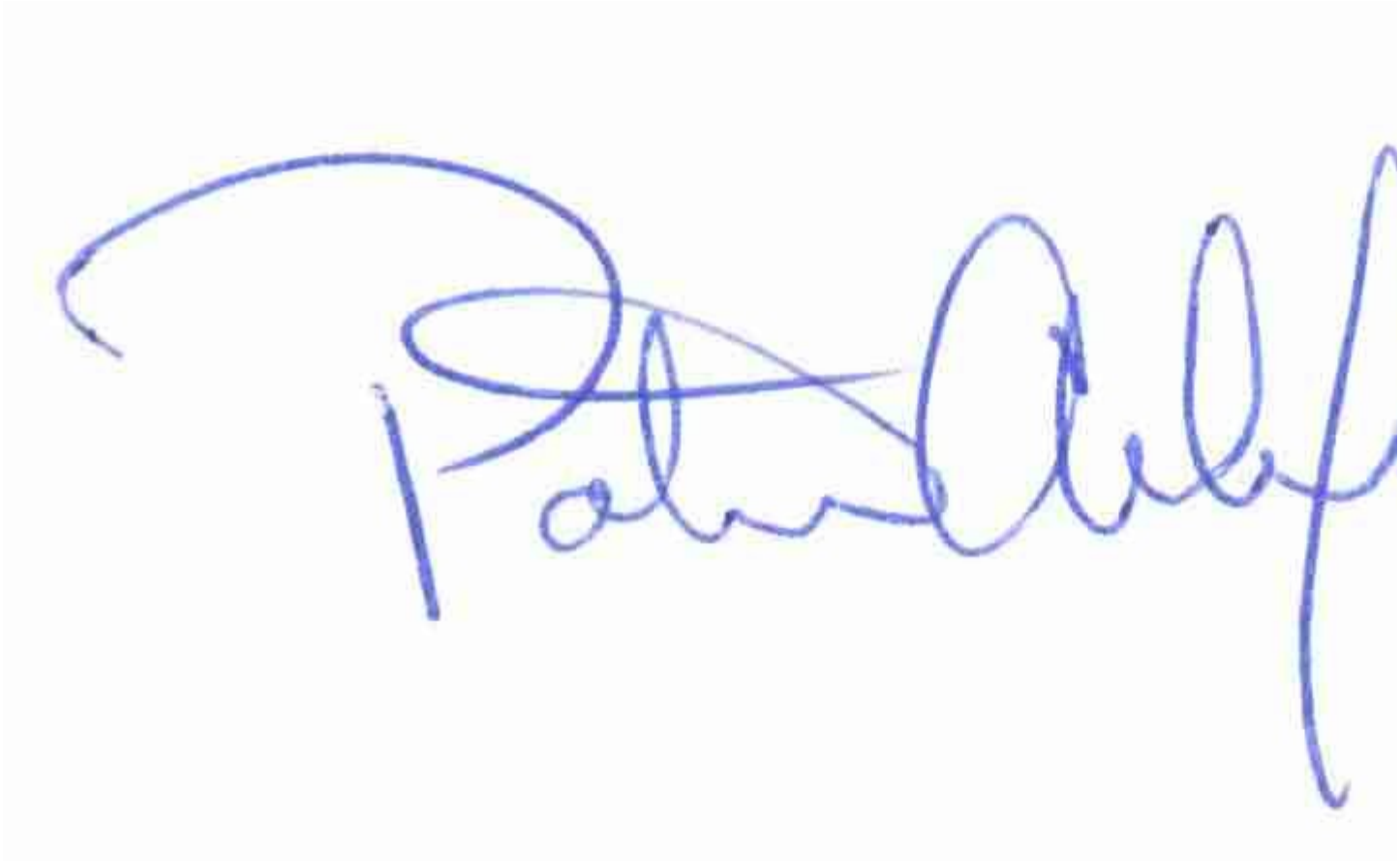
Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army 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. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or 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, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@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
Field Office Supervisor

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

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

May 6, 2021

Ben Otto
2 Crowne Point Court
Suite 100
Cincinnati, Ohio 45241

Re: 21-0342; AEP Arboles Station and Associated Transmission Lines Project

Project: The proposed project includes the construction of five 138 kilovolt (kV) transmission lines, the removal of approximately 0.8-mile of existing 100-foot 138 kV transmission line right-of-way (ROW,) rebuilding approximately 0.4- mile of existing 100-foot 138 kV line ROW, and the construction of the Arboles substation.

Location: The proposed project is located in Scioto Township, Pike County 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 no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. 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.

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.

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 entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH ≥ 20 if possible. If trees are present within the project area, and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting. Mist net and acoustic surveys should be conducted in accordance with the most recent version of the "*OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING*". https://ohiodnr.gov/static/documents/wildlife/wildlife-management/Bat+Survey+Guidelines.pdf

If state listed bats are documented, DOW recommends cutting only occur from October 1 through March 31, however, limited summer tree cutting may be acceptable after consultation with DOW (contact Sarah Stankavich, sarah.stankavich@dnr.state.oh.

The DOW also recommends that a desktop habitat assessment, followed by a field assessment if needed, is conducted to determine if there are potential hibernaculum(a) present within the project area. Information about how to conduct habitat assessments can be found in the current USFWS "*Range-wide Indiana Bat Survey Guidelines*." If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the project area, please send this information to Sarah Stankavich, sarah.stankavich@dnr.state.oh.us for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.
The project is within the range of the following listed mussel species:

Federally Endangered
clubshell (*Pleurobema clava*)
Northern rifffleshell (*Epioblasma torulosa rangiana*)
rayed bean (*Villosa fabalis*)

State Endangered
Ohio pigtoe (*Pleurobema cordatum*)
washboard (*Megalonaias nervosa*)
yellow sandshell (*Lampsilis teres*)

State Threatened
black sandshell (*Ligumia recta*)
fawnsfoot (*Truncilla donaciformis*)
threehorn wartyback (*Obliquaria reflexa*)

Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the following listed fish species:

State Endangered
bigeye shiner (*Notropis boops*)
goldeye (*Hiodon alosoides*),
popeye shiner (*Notropis ariommus*),
shoal chub (*Macrhybopsis hyostoma*),
shortnose gar (*Lepisosteus platostomus*),
shovelnose sturgeon (S*caphirhynchus platorynchus*),

State Threatened
blue sucker (*Cycleptus elongatus*),
channel darter (*Percina copelandi*),
paddlefish (*Polyodon spathula*)
river darter (*Percina shumardi*),
Tippecanoe darter (*Etheostoma tippecanoe*)

The DOW recommends no in-water work in perennial streams from March 15 through 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 timber rattlesnake (*Crotalus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the midland mud salamander (*Pseudotriton montanus diastictus*), a state threatened species. Due to the location, the type of habitat within the project area, and the type of work proposed, 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.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

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.

Mike Pettegrew
Environmental Services Administrator (Acting)