Letter of Notification for the Endor 138kV Switch Project

AEP OHIO TRANSMISSION COMPANY

An AEP Company

BOUNDLESS ENERGY

PUCO Case No. 25-1006-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.

October 31, 2025

LETTER OF NOTIFICATION

AEP Ohio Transmission Company, Inc.

Endor 138kV Switch 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

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 proposes the Endor 138kV Switch Project ("Project"), located within Madison Township in Pickaway County, Ohio. The Project is necessitated by a request from a customer for a new 138 kV delivery point (Endor) from the existing Good Hope Switch-Harrison 138 kV transmission line. The Project will require cutting into the Good Hope Switch-Harrison 138 kV transmission line, replacing three existing H-frames with two direct-embed monopoles and one new Endor 3-way phase over phase switch, and installing approximately 0.1 miles of 138 kV line to the customer's delivery point. Figure 1, in **Appendix A**, shows the location of the Project in relation to the surrounding vicinity.

The Project meets the requirements for a Letter of Notification (LON) as defined by Item 1(d)(ii) of **Appendix A** to Ohio Administrative Code Section 4906-1-01, *Application Requirement Matrix for Electric Power Transmission Lines*:

> *(1) New construction, extension, or relocation of single or multiple circuit electric power transmission line(s), or upgrading existing transmission or distribution line(s) for operation at a higher transmission voltage, as follows:*
>
> *(d) Line(s) primarily needed to attract or meet the requirements of a specific customer or customers, as follows:*
>
> *(ii) Any portion of the line is on property owned by someone other than the specific customer or applicant.*

The Project has been assigned Case No. 25-1006-EL-BLN

B(2) Statement of Need

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

A customer has requested 138 kV transmission delivery to a site in Pickaway County, OH. The Project is required to provide temporary service to the customer to serve an initial demand of 24.2MW until 2029.

Failure to move forward with the proposed Project will result in the inability to serve the customer's load expectations and thereby jeopardize the customer's plans in Pickaway County, Ohio (initially 24.2 MW).

Due to the Project being active for less than 5 years, the Project is not required to be presented to PJM as it is considered a temporary solution. A permanent solution to the overall customer's service plan will be submitted to PJM as a supplemental project, and the subject of future filings with the OPSB. In addition, the Project is not included in the Company's 2025 Long-Term Forecast Report, as the Project solution was unknown at the time of filing.

B(3) Project Location

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**.

B(4) Alternatives Considered

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

The Project is primarily located on customer land, or within the existing ROW. Based on the customer's proposed development and existing facilities in the area, the proposed location is the most suitable location for the Project. Other alternatives would require impacting neighboring properties, as opposed to remaining primarily on the customer's property or within the existing ROW. The Project is located primarily on agricultural land and will not require tree clearing. The Project will not impact any delineated wetlands or streams. The location of the Project minimizes impacts to the community and the environment while considering the engineering and construction needs of the customer. The Project also represents the most suitable location and most appropriate solution for meeting the Company's and customer's needs.

B(5) Public Information Program

Describe its public information program to inform affected property owners and residents 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 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

Provide an anticipated construction schedule and proposed in-service date of the project.

Construction of the Project is planned to begin in December 2025 with an anticipated in-service date in March 2026. To meet customer's in-service date, the Company intends to start construction on, or shortly after, the recommended approval date. Conditions of approval and notification requirements will be completed upon release of the Ohio Power Siting Board staff report.

B(7) Area Map

Provide a map of at least 1:24,000 scale clearly depicting the facility and proposed limits of disturbance 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 United States Geological Survey 1:24,000 Lockbourne quadrangle map. **Appendix A**, Figure 2 displays the Project components on a 2022 aerial photograph.

B(8) Property Agreements

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.

A list of properties required for the Project are provided in Table 1, below.

Table 1 – Property Agreements

Property Parcel Number	Agreement Type	Easement or Option Obtained (Yes/No)
F1600010006905	Existing Easement	Yes
F1600010007000	Existing Easement	Yes
F1600010007100	Existing Easement	Yes

B(9) Technical Features

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 transmission line is estimated to include the following:

Voltage:	138 kV
Conductors:	(1) 1033.5 KCM 54-7 ACSR Curlew per phase
Shield wires	158-160: (1) OPGW and (1) 7#8 Alumoweld
	159-customer: (1) 7#8 Alumoweld
Insulators:	Polymer
ROW Width:	100'
Structure Types:	(2) Braced Post Direct-Embed Structures;
	(1) Custom Switch on concrete pier foundation

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.

B(9)(b)(i) Calculated electric and magnetic field strength levels at one meter above ground under the lowest conductors and at the edge of the right-of-way for:

i) Calculated Electric and Magnetic Field Levels

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

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

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 Cost

The estimated capital cost of the project.

The cost estimate for the proposed Project, which is comprised of applicable tangible and capital costs, is approximately $3.1 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 Ecological Impacts

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

B(10)(a) Land Use

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 area is located north of Miller Road on three parcels totaling 111.1 acres in Madison Township, northeast Pickaway County, Ohio. The Project area is not located within any incorporated places. The closest incorporated place to the Project area is Ashville, Ohio, located approximately 3.5 miles southeast.

The Project area consists of agricultural fields and forested areas. There are no known parks, wildlife management areas, nature preserve lands, or National Historic Register sites within 1,000 feet of the Project. An aerial photograph of the Project vicinity is provided as Figure 2. No tree clearing is anticipated for the Project. Rural residential parcels are located south and east of the Project area. Additional surrounding parcels are rural, agricultural, or forested.

B(10)(b) Agricultural Land

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.

The Project area's vegetative community consist primarily of agricultural land. The dominant agricultural use appears to be row crops (i.e. soy beans and corn). Approximately 17 acres of agricultural land is located throughout the Project area. Based on coordination with the Pickaway County Auditor's Office on September 2, 2025, the Project is not located within registered agricultural district lands.

B(10)(c) Archaeological and Cultural Resources

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

Prior to the archaeological field investigation, a literature review was conducted for the Project. From this review, three known archaeological sites (33PI1868-33PI1870) were identified within the Project area. These three archaeological sites were all isolated finds that were determined not eligible for listing in the National Register of Historic Places (NRHP). A Phase I archaeological survey was conducted within the current Project area using a combination of visual inspection, surface collection, and shovel test excavations. No additional archaeological evidence associated with sites 33PI1868-33PI1870 was recovered as a result of the current survey. Two new archaeological sites (33PI1913 and 33PI1914) were identified within the Project area; none of these archaeological resources were recommended for eligibility in the NRHP, and no additional surveys were recommended. The results of the archaeological survey were submitted to the State Historic Preservation Office ("SHPO") and the SHPO responded with a letter on October 24, 2025, stating that as proposed, the Project will have no effect on historic properties, see **Appendix B**.

For architectural and historical resources, there was a previous history/architecture survey (Weller and McIntosh, 2025) that was considered sufficient to account for the viewshed associated with the current Project. This previous investigation did not identify any significant resources within its study area. The SHPO concurred in the October 24, 2025 letter, that "architectural resources within the [current] Area of Potential Effect (APE) have been previously addressed" (Weller and McIntosh, 2025). See **Appendix B** for correspondence.

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 summary of anticipated permits and authorizations for the Project is provided in the Table 2 below. There are no other known local, state, or federal requirements that must be met prior to commencement of the Project.

Table 2 – Anticipated Permits

Permit/Authorization/Coordination	Agency	Date
Federally Listed Endangered Species Review	U.S. Fish and Wildlife Service (USFWS)	A USFWS consultation and clearance letter was issued 6/4/2025. (**Appendix B**).
Environmental Review (State T&E Species Consultation and Clearance)	Ohio Department of Natural Resources (ODNR) Office of Real Estate	An ODNR consultation letter was issued 6/30/2025. (**Appendix B**).
Cultural Resources Review	Ohio Historic Preservation Office (OHPO)	An OHPO concurrence letter was issued for the Project on 10/24/2025 stating that the Project will have no effect on historic properties (**Appendix B**).
Road Use Maintenance Agreement (RUMA)	Pickaway County	In progress
Driveway Permit	Pickaway County	In progress
Stormwater Permit	Ohio Environmental Protection Agency	Submitted 10/20/2025

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.

On June 3, 2025, coordination letters were submitted to the United States Fish and Wildlife Service (USFWS) and the Ohio Department of Natural Resources (ODNR) Ohio Natural Heritage Program (ONHP) and Division of Wildlife (DOW), seeking an environmental review of the Project for potential impacts to state and/or federally protected species. ODNR and USFWS provided responses on June 30, 2025, and June 4, 2025, respectively. Copies of the agencies' responses are presented in **Appendix B.**

Table 3, in **Appendix C** lists the federal and state threatened or endangered species in the Project area.

Based on the nature of the proposed Project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated.

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.

The Company's consultant conducted a wetland and stream delineation survey in the Project study area on August 5, 2025, and prepared an Ecological Survey Report, which is provided in **Appendix C**. The survey of the Project area identified one isolated palustrine emergent wetland. The Project construction activities will avoid the wetland and are not expected to result in discharge of fill in the delineated wetland.

Based on a review of the Protected Areas Database of the United States as well as the Conservation Easement Database, there are no state or national parks, forests, wildlife areas, or mapped conservation easements in the vicinity of the Project.

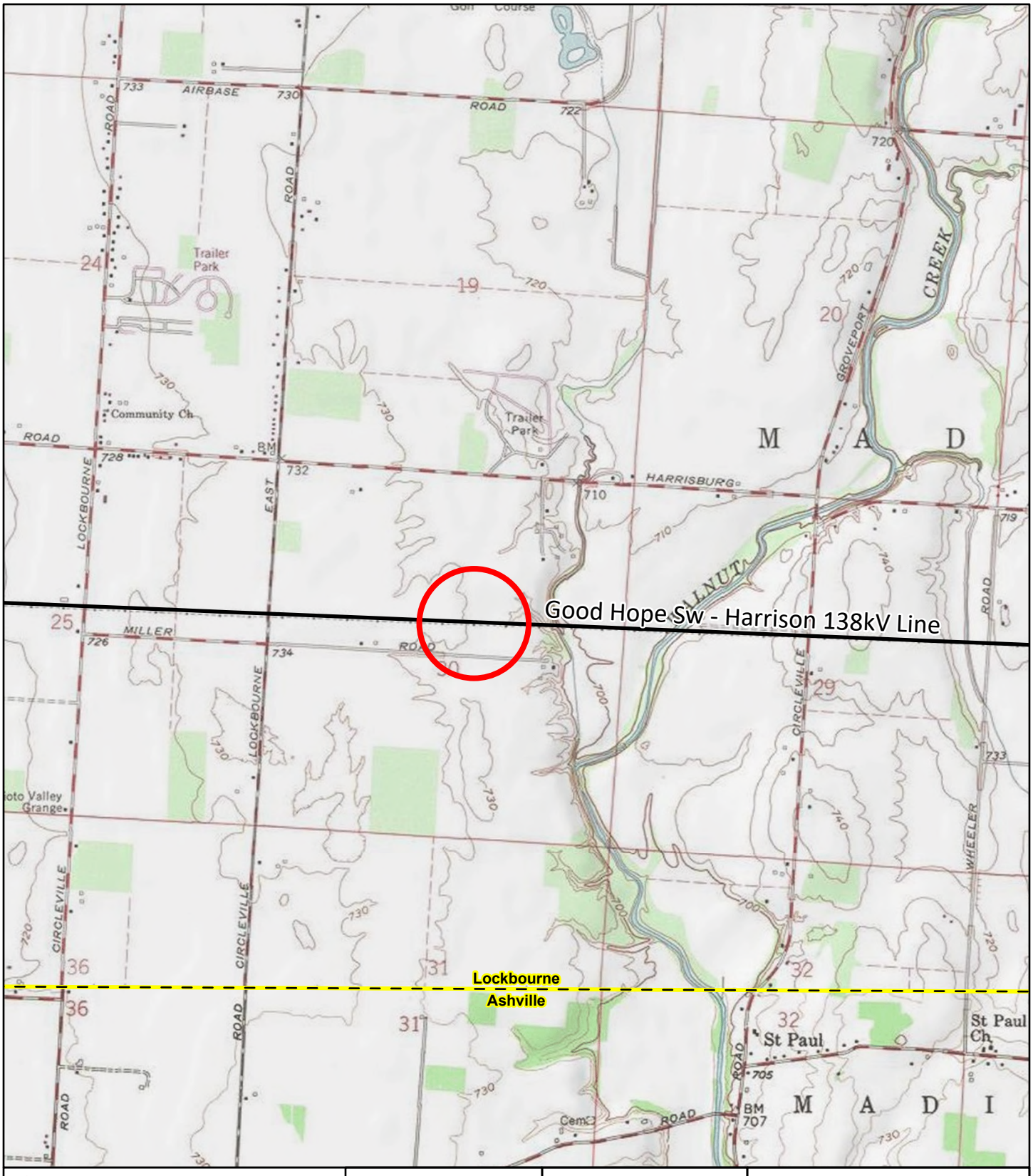
The FEMA Flood Insurance Rate Map ("FIRM") was reviewed to identify any floodplains/flood hazard areas that have been mapped within the Project area (specifically, map number 39129C0075J). Based on this mapping, FEMA-designated 100-year floodplain associated with the unnamed tributary to Walnut Creek is outside of the Project area.

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.

Appendix A Project Maps



Data Sources: AEP, USGS 7.5' Topographic Quadrangle (Lockbourne)

Coordinate System and Datum:
NAD 83 State Plane Ohio South, Feet

October 30, 2025

OHIO

FIGURE 1
TOPOGRAPHIC OVERVIEW

AEP OHIO TRANSMISSION COMPANY
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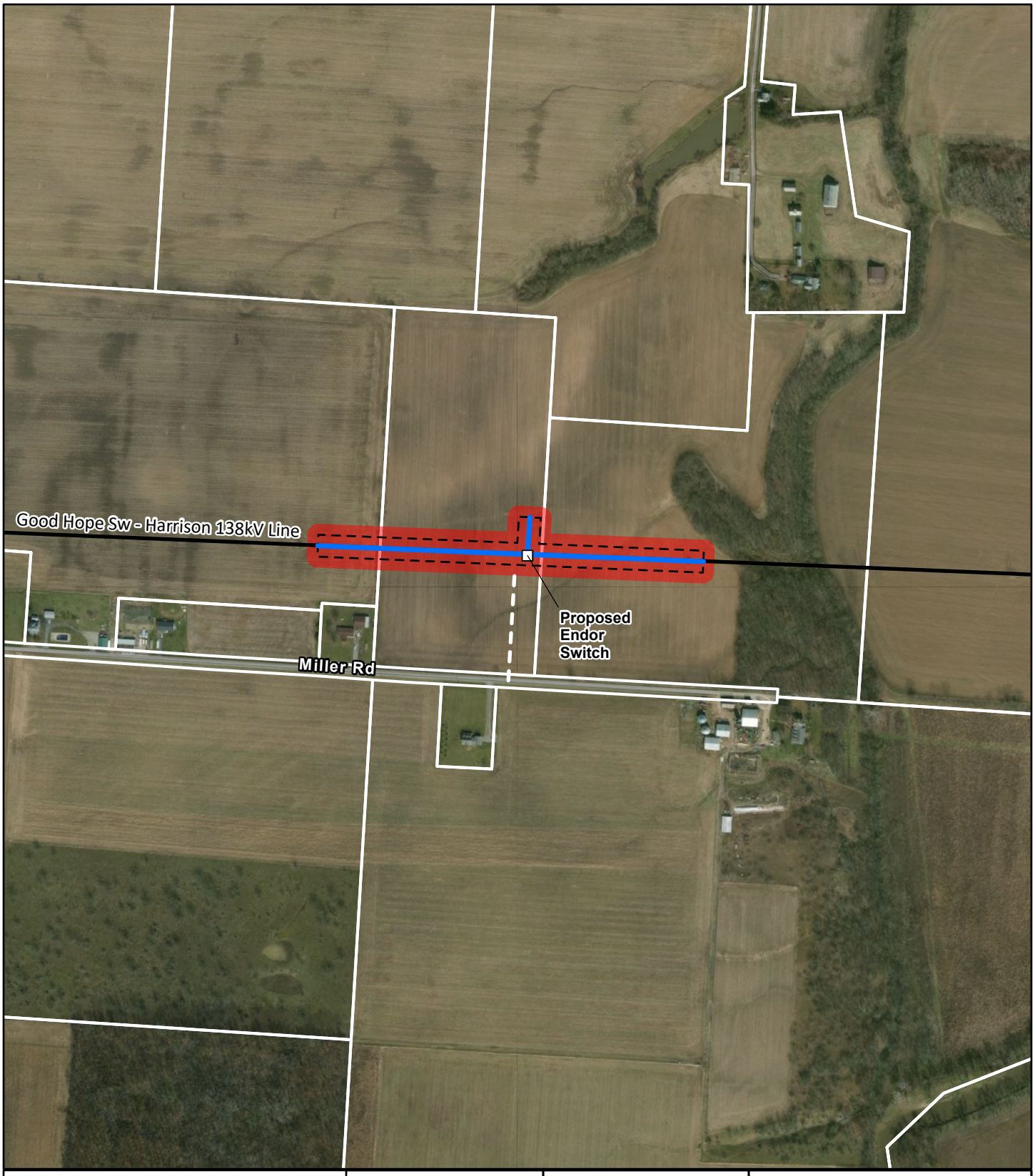
Endor 138kV Switch Project

0 1,000 2,000 3,000
Feet



- Proposed Switch
- Proposed Centerline
- Access Road
- Existing Transmission Line
- Proposed Route
- Proposed 80 ft Right of Way
- Parcel Boundary

Data Sources: AEP, ESRI World Imagery Service (Clarity, 2022)

Coordinate System and Datum:
NAD 83 State Plane Ohio South, Feet

October 30, 2025

FIGURE 2
AERIAL MAP

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY™

Endor 138kV Switch Project

0 100 200 300
Feet

Appendix B Agency Correspondence

Department of Natural Resources
ohiodnr.gov

Mike DeWine, *Governor*
Jim Tressel, *Lt. Governor*
Mary Mertz, *Director*

Office of Real Estate & Land Management
Tara Paciorek - Chief
2045 Morse Road – E-2
Columbus, Ohio 43229-6693

June 30, 2025

Daniel Godec
Stantec Consulting Services Inc.
11687 Lebanon Road
Cincinnati, Ohio 45241

Re: 25-0856_Endor Switch

Project: The proposed project involves the installation of a 3-way POP switch at or near Structure 159 on the Lockbourne-Good Hope Switch 138 kV transmission line and building a new 0.1-mile 138 kV radial transmission line to the customer's new substation.

Location: The proposed project is located in Madison Township, Pickaway 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 the following data within one mile of the project area:

Spotted Darter (*Etheostoma maculatum*), E
Tippecanoe Darter (*Etheostoma tippecanoe*), SC

Conservation status abbreviations are as follows: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federally endangered, and FT = federally threatened. The review was performed on the specified project area as well as an additional one-mile radius. Records searched date from 1980. Features searched include locations of rare and endangered plants and animals determined to be of value to the conservation of their species, high quality plant communities, animal breeding assemblages, and outstanding geological features.

The species listed above are not recorded within the boundaries of the specified project area. However, please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for an area is not a statement that rare species or unique features are absent from that area.

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

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

The project is within the vicinity of records for the little brown bat (*Myotis lucifugus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, 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 endangered 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 bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in clusters of dead leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree 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.

For every project, the DOW also recommends that a winter bat habitat assessment is conducted to determine if potential hibernacula are present within the project area. This is to limit possible disturbances that seasonal tree clearing and/or subsurface work (e.g., trenching, blasting, etc.) may cause to hibernating bats. Potential hibernacula include rocky outcroppings, caves, and underground mines. Direction on how to conduct winter habitat assessments can be found in the joint guidance OHIO DIVISION OF WILDLIFE AND U.S. FISH AND WILDLIFE SERVICE JOINT GUIDANCE FOR BAT SURVEYS AND TREE CLEARING. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting buffer around the hibernaculum entrance. Limited summer or winter tree cutting may be acceptable after consultation with the DOW. If a habitat assessment for projects involving subsurface disturbance finds that a potential hibernaculum is present within 5 miles of the project area, please consult with Eileen Wyza for project recommendations. 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*)
fanshell (*Cyprogenia stegaria*)
northern rifffleshell (*Epioblasma torulosa rangiana*)
purple cat's paw (*Epioblasma obliquata*)
rayed bean (*Villosa fabalis*)
snuffbox (*Epioblasma triquetra*)

Federally Threatened
rabbitsfoot (*Theliderma cylindrica*)

State Endangered
butterfly (Ellipsaria lineolata)
ebonyshell (*Fusconaia ebenus*)
elephant-ear (Elliptio crassidens)
long-solid (*Fusconaia subrotunda*)
Ohio pigtoe (*Pleurobema cordatum*)
pyramid pigtoe (*Pleurobema rubrum*)
sharp-ridged pocketbook (*Lampsilis ovata*)
washboard (*Megalonaias nervosa*)

State Threatened
pondhorn (*Uniomerus tetralasmus*)
Salamander Mussel (*Simpsonaias ambigua*)

Due to the location, and that there is no in-water work proposed in a perennial stream, 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*)
northern brook lamprey (*Ichthyomyzon fossor*)
northern madtom (*Noturus stigmosus*)
shortnose gar (*Lepisosteus platostomus*)
spotted darter (*Etheostoma maculatum*)
shovelnose sturgeon (S*caphirhynchus platorynchus*)

State Threatened
blue sucker (*Cycleptus elongatus*)
lake chubsucker (*Erimyzon sucetta*)
paddlefish (*Polyodon spathula*)

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

The project is within the range of the northern harrier (*Circus hudsonius*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the sandhill crane (*Antigone canadensis*), a state threatened species. Sandhill cranes are primarily a wetland-dependent species. On their wintering grounds, they will utilize agricultural fields; however, they roost in shallow, standing water or moist bottomlands. On

breeding grounds, they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. If grassland, prairie, or wetland habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 through August 31. If this habitat will not be impacted, this project is not likely to have an impact on this species.

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

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

If the subject project is in a floodplain regulated by the Federal Emergency Management Agency (FEMA), the local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals. The FEMA National Flood Hazard Layer (NHFL) Viewer website can be utilized to see if the project is in a FEMA regulated floodplain. If the project is not in a FEMA regulated floodplain, then no further action is required.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew (Environmental Services Administrator) at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Expiration: *ODNR Environmental Reviews are typically valid for 2 years from the issuance date. If the scope of work, project area, construction limits, and/or anticipated impacts to natural resources have changed significantly from the original project submittal, then a new Environmental Review request should be submitted.*

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994

June 4, 2025

Project Code: 2025-0104906

Dear Mr. Godec:

The U.S. Fish and Wildlife Service (Service) 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 effects 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: Due to the project, type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species or proposed or designated critical habitat. If there are any project modifications during the term of this action, or additional information for listed or proposed species or their critical habitat becomes available, or if new information reveals effects of the action that were not previously considered, then please contact us for additional project review.

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,

Erin Knoll
Field Office Supervisor

In reply, refer to
2025-PIC-66463

October 24, 2025

Ryan J. Weller
Weller & Associates, Inc.
1395 West Fifth Avenue
Columbus, Ohio 43212
rweller@wellercrm.com

RE: Endor Switch Project, Madison Township, Pickaway County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on September 23, and October 27, 2025, regarding the proposed Endor Switch Project located in Madison Township, Pickaway County, Ohio, 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 (OPSB) rules for siting this project (OAC 4906-4 & 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 *Phase I Archaeological Investigations for the 7.08 hectare (17.5-acre) Endor Switch Project in Madison Township, Pickaway County, Ohio* by Seth T. Cooper (Weller & Associates, Inc. 2025). A literature review, visual inspection, surface collection, and shovel test unit excavations were completed as part of the investigations. A previous professional survey had identified three (3) Ohio Archaeological Inventory (OAI) sites within the current project area (33PI1868-33PI1870; Weller and McIntosh 2025). All three (3) sites are isolated finds and were not re-identified during the current investigations. Our office previously agreed that 33PI1868-33PI1870 were not eligible for the National Register of Historic Places (NRHP; letter dated August 12, 2025). The current investigations identified two (2) new OAI sites (33PI1913 and 33PI1914). Neither site was recommended eligible for the NRHP, and our office agrees with these recommendations. No additional archaeological survey is recommended. Architectural resources within the Area of Potential Effect (APE) have been previously addressed (Weller and McIntosh 2025.

Based on the information provided, it is our office's opinion 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 cultural resources are discovered during the implementation of this project. In such a situation, this office should be contacted. If you have any questions, please contact me by e-mail at cgullett@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Catherine Gullett, Project Reviews Coordinator - Archaeology
Resource Protection and Review
State Historic Preservation Office

RPR Serial No: 1110979

"Please be advised that this is a Section 106 decision. This review decision may not extend to other SHPO programs."

Appendix C Ecological Survey Report

Endor Switch Project

Ecological Survey Report

Prepared for:

AEP Ohio Transmission Company, Inc.
8600 Smiths Mill Road
New Albany, OH 43054

Prepared by:

Stantec Consulting Services, Inc.
10200 Alliance Rd, Suite 300
Blue Ash, OH 45242

August 21, 2025

Sign-off Sheet

This document entitled Endor Switch Project Ecological Survey Report was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of AEP Ohio Transmission Company, Inc. Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by 

(signature)

Malea Casey

Reviewed by 

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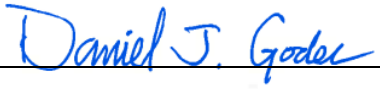
Reviewed by 

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Dan Godec

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1.0 INTRODUCTION

AEP Ohio Transmission Company, Inc. (AEP) is proposing construction activities associated with the Endor Switch Project. AEP plans to install a 3-way Phase-Over-Phase (POP) switch (Endor Switch) at or near Structure 159 on the Lockbourne – Good Hope Switch 138 kV line and build a new 0.1-mile 138 kV radial transmission line to a new substation belonging to a customer of AEP requesting 138 kV transmission delivery to their site (Figure 1, Appendix A). The Project area was surveyed for wetlands, waterbodies, open water features, and potential threatened, endangered, and rare species habitat by Stantec Consulting Services Inc. (Stantec) biologists on August 5, 2025. The approximate locations of features located up to 50 feet outside of the Project area were also recorded during the field surveys, where landowner access was permitted. However, no data forms were collected on features that did not extend into the Project area. The approximate locations of these features are shown on the Figure 2 maps in Appendix A as "approximate" wetlands, streams (waterways), open waters, and upland drainage features.

2.0 METHODS

2.1 WETLAND DELINEATION

Prior to completing the field surveys, a desktop review of the Project area was conducted using U.S. Geological Survey (USGS) topographic mapping, National Wetlands Inventory (NWI) mapping, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey data, and aerial imagery mapping. Stantec completed a wetland delineation study in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE 2010). Wetland categories were classified using the Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001).

2.2 STREAM DELINEATION

Streams that demonstrated a continuously defined channel (bed and bank), ordinary high water mark (OHWM), and the disturbance of terrestrial vegetation were delineated within the Project area, per the protocols outlined in the USACE's Guidance on Ordinary High Water Mark Identification (Regulatory Guidance Letter, No. 05-05) (USACE 2005). Delineated streams were classified as ephemeral, intermittent, or perennial per definitions in the Federal Register/Vol. 67, No. 10 (USACE 2002). Functional assessment of streams identified within the Project area was based on completion of the Ohio Environmental Protection Agency's (OEPA) Headwater Habitat Evaluation Index (HHEI; OEPA 2020) and/or Qualitative Habitat Evaluation Index (QHEI; OEPA 2006) data forms. The centerline of each waterway and/or the OHWM of each waterway was identified and surveyed using a handheld sub-meter accuracy global positioning system (GPS) unit and mapped with geographic information system (GIS) software. Additionally, the locations of ponds/open water features and upland drainage features (which lacked a continuously defined bed and bank/OHWM) identified within the Project area were also recorded with a sub-meter accuracy GPS unit during the field surveys.

2.3 RARE SPECIES

Prior to conducting the field surveys, Stantec contacted the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) for information regarding rare, threatened, or endangered species and their habitats of concern within the vicinity of the Project area (Appendix B – Agency Correspondence). To assess potential impacts to rare, threatened, or endangered species, Stantec scientists conducted a pedestrian reconnaissance of the proposed Project area, collected information on existing habitats and land cover types within the Project area, and assessed the potential for these habitats and land cover types to be used by federally listed or state-listed threatened and endangered species that have the potential to occur within Pickaway County.

3.0 RESULTS

3.1 TERRESTRIAL HABITAT

Stantec completed field surveys for threatened and endangered species or their habitats on August 5, 2025. Figure 3 (Appendix A) shows the vegetation communities/habitats and land cover types identified within the Project area and the locations of any identified rare, threatened, or endangered species habitat observed within the Project area during the time of the habitat assessment surveys. Representative photographs of the vegetation communities/habitats and land cover types identified within the Project area are included in Appendix C of this report (photo locations are shown on Figure 3, Appendix A). Information regarding the vegetation communities/habitats/land cover types identified within the Project area is provided in Table 1.

Table 1. Vegetation Communities and Land Cover Types Found within the Endor Switch Project Area, Pickaway County, Ohio

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
Agricultural Land	Extreme Disturbance/Ruderal Community (dominated by planted row crop species such as corn (*Zea mays*) and soybean (*Glycine max*).	No	16.97
Early Successional Deciduous Forest	Moderate Disturbance/Natural Community dominated by shrubs and young trees. Common plant species included common hackberry (*Celtis occidentalis*), Amur honeysuckle (*Lonicera maackii*), eastern cottonwood (*Populus deltoides*), pin oak (*Quercus palustris*), black walnut (*Juglans nigra*), and black locust (*Robinia pseudoacacia*).	No	0.27
New Field	Extreme Disturbance/Ruderal Community. Common plant species included tall fescue (*Schedonorus arundinaceus*), red clover (*Trifolium pratense*), common dandelion (*Taraxacum officinale*), Japanese bristlegrass (*Setaria faberi*), and Canadian horseweed (*Erigeron canadensis*).	No	0.25
Palustrine Emergent Wetland	Moderate Disturbance/ herbaceous dominated community with varying degrees of native and non-native species. Common plant species included strawcolored flatsedge (*Cyperus strigosus*), rough cocklebur (*Xanthium strumarium*), and yellowseed false pimpernel (*Lindernia dubia*).	No	0.05

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
		TOTAL	**17.54**

3.2 WETLANDS

Stantec completed field surveys for wetlands within the Project area on August 5, 2025. As a result of the field surveys, Stantec identified one wetland within the Project area. Figure 2 (Appendix A) shows the locations of the wetland identified by Stantec within the Project area. Representative photographs of the wetland identified within the Project area are included in Appendix C of this report (photograph locations are shown on Figure 2, Appendix A). Completed wetland determination data forms and the completed ORAM data form for the wetland are included in Appendix D. Information regarding the Cowardin classification and ORAM category of the wetland identified within the Project area is provided in Table 2. No NWI-mapped wetlands are located within the Project area (Figure 2, Appendix A).

Table 2. Summary of Wetland Resources Found within the Endor Switch Project Area, Pickaway County, Ohio.

Wetland ID	Location		Isolated?[1]	Habitat Type[2]	Delineated Area (acre)	ORAM		Nearest Proposed Structure Number	Existing Structure Number in Wetland	Proposed Structure Number in Wetland	Structure Installation Method	Proposed Impacts	
	Latitude	Longitude				Score[4]	Category[4]					Temporary Matting Area (acre)	Permanent Impact Area (acre)
Wetland 1	39.764476	-82.929654	Yes	PEM[3]	0.05	10	1	159	N/A	N/A	TBD[5]	TBD[5]	TBD[5]
				TOTAL	**0.05**						**TOTAL**	TBD[5]	TBD[5]

[1] Pending USACE jurisdictional review
[2] Habitat type based on Cowardin et al. (1979).
[3] PEM = Palustrine Emergent Wetland
[4] ORAM Score and Category are based on the Ohio Rapid Assessment Method for Wetland v. 5.0 (Mack 2001).
[5] TBD = To be determined. Wetland impacts are unknown at this time.

3.3 STREAMS

No stream features were identified within the Project area during the field surveys completed on August 5, 2025.

3.4 OPEN WATERS

No open water features were identified within the Project area during the field surveys completed on August 5, 2025.

3.5 RARE, THREATENED, OR ENDANGERED SPECIES HABITAT

Table 3. Summary of Potential Federally Listed and Ohio State-Listed Species within the Endor Switch Project Area, Pickaway County, Ohio

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Mussels						
Pondhorn/ *Uniomerus tetralasmus*	T	N/A	This species occurs in fine gravel in moderate current. It may be encountered in shallow, quiet, or slow-moving water at depths seldom exceeding two feet. This species typically inhabits the quiet or slow-moving, shallow waters of sloughs, borrow pits, ponds, ditches, and meandering streams. It is typically found buried in a substrate of fine sand and mud in shallow sloughs and ditches, and it is a species tolerant of adverse habitat conditions, surviving for periods of weeks or even months buried in the bottoms or banks of dried-up ponds (Parmalee and Bogan 1998; NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the pondhorn mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Rayed Bean/*Villosa fabalis*	E	E	Habitat includes gravel or sandy substrates, especially in areas of thick roots of aquatic plants and increased substrate stability (NatureServe 2025; Parmalee and Bogan 1998). Rayed bean can be associated with shoal or riffle areas, and in shallow, wave-washed areas of glacial lakes. It is generally found in smaller, headwater creeks, but sometimes in larger rivers and open-water bodies. It can occur in shallow riffles or in lakes with water depths up to four feet. It has been found in riffles, generally in vegetation, and deeply buried in sand and gravel bound together by roots (Parmalee and Bogan 1998).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the rayed bean mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Long-solid/*Fusconaia maculata*	E	N/A	This mussel is found in the gravel substrates of shoals and riffles of large rivers, as well as impounded areas (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the long-solid mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Snuffbox/*Epioblasma triquetra*	E	E	Occurs in medium-sized streams to large rivers, generally on mud, rocky, gravel, or sand substrates in flowing water. Often deeply buried in substrate and overlooked by collectors (NatureServe 2025). The snuffbox is commonly found buried in the substrate. It is found in a wide range of particle sized substrates; however, swift shallow riffles with sand and gravel are where it is typically found (Parmalee and Bogan 1998; Watters et al. 2009).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the snuffbox mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Rabbitsfoot/*Theliderma cylindrica*	E	T	The rabbitsfoot occurs in small to medium-sized streams and some larger rivers where bottom substrates generally include sand and gravel (Parmalee and Bogan 1998).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the rabbitsfoot mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Salamander Mussel/*Simpsonaias ambigua*	T	PE	Although occasionally found elsewhere, there is little doubt the preferred habitat is in sand or silt under large, flat stones in areas of a swift current in medium to large rivers and lakes. Its presence is linked to the mudpuppy and generally occupies rivers but can also be found in creeks, streams, and lakes in areas of swift current (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the salamander mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Butterfly/*Ellipsaria lineolata*	E	N/A	This mussel prefers stable substrate containing rock, gravel and sand in swift currents of large rivers (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the butterfly mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Ebonyshell/*Fusconaia ebenus*	E	N/A	This species inhabits large rivers and prefers swift water and stable sandy or gravely shoals (Cummings and Mayer 1992). This species occurs in currents at depths of 10 to 15 feet or more (Parmalee and Bogan 1998). A coarse sand and gravel substrate provides the most suitable habitat, although this species thrives in rivers composed of sand, silt, and mud (NatureServe 2023).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the ebonyshell mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Ohio Pigtoe/*Pleurobema cordatum*	E	N/A	This mussel prefers strong currents of large rivers with substrates of sand and gravel, though is somewhat tolerant of lentic systems (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the Ohio pigtoe mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Purple Cat's Paw/*Epioblasma obliquata obliquata*	E	E	Inhabits large river systems in sand and gravel substrates in runs and riffles (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the purple cat's paw mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Fanshell/*Cyprogenia stegaria*	E	E	This mussel is typically found in medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the fanshell mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Elephant-ear/*Elliptio crassidens*	E	N/A	This mussel is found in muddy sand, sand, and rocky substrates in moderate currents. In some areas, it is common in large creeks to rivers with moderate to swift currents primarily on sand and limestone or rock substrates (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the elephant-ear mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Northern Riffleshell/ *Epioblasma rangiana*	E	E	This species is found in a wide variety of streams from small to large. Habitat for this species includes riffles and firmly packed substrates of fine to coarse gravel. This mussel needs highly oxygenated water (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the northern riffleshell mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Clubshell/*Pleurobema clava*	E	E	The clubshell occurs in medium to small rivers and streams, containing clean, coarse sand and cobble substrates (USFWS 1994). The clubshell is usually found within the current, where it may live several inches underneath the surface. It is most common in the downstream ends of riffles and islands (Watters et al. 2009). The clubshell is mostly considered an Ohio River system species, including the Tennessee, Cumberland, Kanawha, and Wabash River drainages. However, it is also found within the Maumee River system of Lake Erie. Although historically the clubshell was originally described as occurring within Lake Erie, only one record of its occurrence there has been found (Watters et al. 2009).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the clubshell mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Pyramid Pigtoe/*Pleurobema rubrum*	E	N/A	This mussel is a riffle and shoal species that prefers the swift currents of coarse gravel, sand, and mud substrates within medium to large rivers (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the pyramid pigtoe mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Sharp-Ridged Pocketbook/*Lampsilis ovata*	E	N/A	Very generalized in habitat preference, adapting well to both impoundment situations as well as free-flowing, shallow rivers. Usually found in moderate to strong current, it can survive in standing water. The most suitable substrate consists of a mixture of gravel and coarse sand mixed with some silt or mud (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the sharp-ridged pocketbook mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Washboard/*Megalonaias nervosa*	E	N/A	Occurs in large rivers, typically in main channel or overbank areas of reservoirs. It is found in areas of slow current with muddy to coarse gravel substrates and water can be up to 50 feet deep (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the washboard mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact thisspecies. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Fish						
Spotted Darter/*Etheostoma maculatum*	E	N/A	This species is found in medium sized rivers and streams. They are typically found in areas of swift current at the top or bottom end of a riffle where there are many very large boulders or flab slabs or rock. They spend most of their time hiding under the upstream edge of these large rocks (ODNR 2018).	No potentially suitable habitat was observed within the Project area.	**ODNR** - There are records of the spotted darter within one mile of the Project area. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Tippecanoe Darter/ *Etheostoma tippecanoe*	SC	N/A	This species prefers medium to large streams in the Ohio River drainage system and are found in riffles of moderate current with substrates of gravel or cobble sized rocks (ODNR 2018).	No potentially suitable habitat was observed within the Project area.	**ODNR** - There are records of the Tippecanoe darter within one mile of the Project area. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Shovelnose Sturgeon/*Scaphirhynchus platorynchus*	E	N/A	The shovelnose sturgeon prefers deep channels and embayments of large turbid rivers; often over sand mixed with gravel or mud in areas with strong current (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the shovelnose sturgeon. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Blue Sucker/*Cycleptus elongatus*	T	N/A	Blue sucker habitat includes the largest rivers and lower parts of major tributaries. Usually, this sucker occurs in channels and flowing pools with moderate current (1.0-2.6 meters/sec). It also occurs in some impoundments. Adults probably winter in deep pools. Young occupy shallower and less swift water than do adults (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the blue sucker. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Goldeye/*Hiodon alosoides*	E	N/A	Goldeye habitat includes quiet turbid water of medium to large lowland rivers, small lakes, ponds, and marshes connected to them, and muddy shallows of larger lakes. This fish prefers moderate to fast current in Illinois and Ohio. Spawning occurs in shallow firm-bottomed sites in river pools or backwaters or over gravel shoals in tributary streams (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the goldeye. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Northern Madtom/*Noturus stigmosus*	E	N/A	Habitat includes deep, swift riffles of large rivers with substrates of cobble and boulders (ODNR 2018).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the northern madtom. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Paddlefish/*Polyodon spathula*	T	N/A	Paddlefish are found in the Ohio River and up to the first dam on its larger tributaries. They prefer the sluggish pools and backwater areas of these rivers and streams. Historically they were much more common and could be found as far up the Ohio River as Pennsylvania. It is also probable that there was a small population in Lake Erie at one time. Today paddlefish are most often seen in the Ohio River from Portsmouth downstream to the Indiana state line (ODNR 2018).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the paddlefish. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Bigeye Shiner/*Notropis boops*	E	N/A	This species prefers flowing pools of moderately clear creeks and small to medium rivers with large permanent pools over bottom of clear sand, gravel, or rock. It can often be found at stream margins in beds of emergent vegetation (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the bigeye shiner. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Northern Brook Lamprey/ *Ichthyomyzon fossor*	E	N/A	Adult lampreys are found in clear brooks with fast flowing water and sand or gravel bottoms. Juveniles are found in slow moving water buried in soft substrate in medium to large streams (ODNR 2018).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the northern brook lamprey. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Shortnose Gar/*Lepisosteus platostomus*	E	N/A	Habitat includes large weedy lakes and reservoirs, backwaters, and quiet pools of medium to large rivers, stagnant ponds, sloughs, canals, brackish waters of coastal inlets, occasionally coastal marine waters; often near vegetation or close to submerged or overhanging objects by day. Young tend to occupy shallows and larger individuals are found in deeper water. Spawning occurs over weed beds of shallow waters in rivers, usually in grass and weeds in shoal water in lakes, or near stone piles of railroad bridges, in nests of smallmouth bass, or over gravel bars (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the shortnose gar. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Lake Chubsucker/*Erimyzon sucetta*	T	N/A	Habitat includes ponds, lakes, oxbows, sloughs, swamps, impoundments, quiet pools of creeks and small rivers, and similar waters of little or no flow that are clear and have bottoms of sand or silt mixed with organic debris; aquatic vegetation usually is present (NatureServe 2025).	No potentially suitable habitat was observed within the Project area.	**ODNR** - The Project is within the range of the lake chubsucker. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. **USFWS** - No comments received.	No potentially suitable habitat was observed within the Project area. Additionally, there is no in-water work in a perennial stream proposed by AEP. Therefore, no impacts to this species are anticipated.
Mammals						
Indiana Bat/ *Myotis sodalis*	E	E	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas; Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007; USFWS 2024). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Primarily use caves for hibernacula, although are also known to hibernate	Potentially suitable summer foraging habitat was observed in early successional deciduous forest habitat within the Project area. One potentially suitable roost tree was observed within the Project area (Figure 3). No potential bat hibernacula were observed within the Project area.	**ODNR** - The entire state of Ohio is within the range of the Indiana bat, a state endangered and federally endangered species. During the spring and summer (April 1 through September 30), this bat species predominately roosts in trees behind loose, exfoliating bark and in crevices and cavities. However, this species is also dependent on the forest structure surrounding roost trees. The ODNR recommends tree 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. The ODNR also recommends that a winter bat habitat assessment is conducted to determine if potential hibernacula are present within the Project area. If a potential or known	Potentially suitable summer roosting and foraging habitat was observed within the Project area. It is anticipated that AEP will conduct any tree clearing required for the Project between October 1 and March 31. If any summer tree clearing is required, AEP will proceed with agency recommendations to avoid impacts to this species. Additionally, a desktop bat hibernacula habitat assessment was completed by Stantec. No active or abandoned underground mines, karst features, or areas of karst geology were identified within 0.25 miles of the Project area as a result of the assessment (Appendix A, Figure 4). No potential bat hibernacula were observed in the Project area. **Avoidance Dates: April 1 – September 30**

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
			in abandoned underground mines (Brack et al. 2010).		hibernaculum is found, the ODNR recommends a 0.25-mile tree cutting buffer around the hibernaculum entrance. Limited summer or winter tree cutting may be acceptable after consultation with the ODNR. If a habitat assessment for projects involving subsurface disturbance finds that a potential hibernaculum is present within 5 miles of the Project area, please consult with Eileen Wyza for project recommendations. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	
Northern Long-eared Bat/ *Myotis septentrionalis*	E	E	The northern long-eared bat is found throughout Ohio. This species generally forages in forested habitat and openings in forested habitat and utilizes cracks, cavities, and loose bark within live and dead trees, as well as buildings as roosting habitat (Brack et al. 2010; USFWS 2020). The species utilizes caves and abandoned mines as winter hibernacula. Various sized caves are used providing they have a constant temperature, high humidity, and little to no air current (Brack et al. 2010).	Potentially suitable summer foraging habitat was observed in early successional deciduous forest habitat within the Project area. One potentially suitable roost tree was observed within the Project area (Figure 3). No potential bat hibernacula were observed within the Project area.	**ODNR** - The entire state of Ohio is within the range of the northern long-eared bat, a state endangered and federally endangered species. During the spring and summer (April 1 through September 30), this bat species predominately roosts in trees behind loose, exfoliating bark and in crevices and cavities. However, this species is also dependent on the forest structure surrounding roost trees. The ODNR recommends tree 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. The ODNR also recommends that a winter bat habitat assessment is conducted to determine if potential hibernacula are present within the Project area. If a potential or known hibernaculum is found, the ODNR recommends a 0.25-mile tree cutting buffer around the hibernaculum entrance. Limited summer or winter tree cutting may be acceptable after consultation with the ODNR. If a habitat assessment for projects involving subsurface disturbance finds that a potential hibernaculum is present within 5 miles of the Project area, please consult with Eileen Wyza for project recommendations. If no tree cutting or subsurface impacts to a hibernaculum are	Potentially suitable summer roosting and foraging habitat was observed within the Project area. It is anticipated that AEP will conduct any tree clearing required for the Project between October 1 and March 31. If any summer tree clearing is required, AEP will proceed with agency recommendations to avoid impacts to this species. Additionally, a desktop bat hibernacula habitat assessment was completed by Stantec. No active or abandoned underground mines, karst features, or areas of karst geology were identified within 0.25 miles of the Project area as a result of the assessment (Appendix A, Figure 4). No potential bat hibernacula were observed within the Project area. **Avoidance Dates: April 1 – September 30**

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
					proposed, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	
Little Brown Bat/ *Myotis lucifugus*	E	N/A	The little brown bat is found throughout Ohio. This species seems to prefer to forage over water but also forages among trees in rather open areas (Harvey et al. 1999). During summer, it typically inhabits buildings, attics, church belfries, barns and outbuildings, and occasionally more natural habitats such as sloughing bark of a dead tree. During summer, two types of roosts are utilized: day roosts and night roosts. Day roosts are the maternity colony roost, while little brown bats often roost in other areas where they rest and congregate to digest their food in between foraging bouts. In Ohio, this species typically utilizes caves and mines as hibernacula, although at least one hibernaculum was found to be located in an attic of an old building (Brack et al. 2010).	Potentially suitable summer foraging habitat was observed in early successional deciduous forest habitat within the Project area. One potentially suitable roost tree was observed within the Project area (Figure 3). No potential bat hibernacula were observed within the Project area.	**ODNR** - The Project is within the vicinity of records for the little brown bat. Additionally, the entire state of Ohio is within the range of the little brown bat, a state endangered species. During the spring and summer (April 1 through September 30), this bat species predominately roosts in trees behind loose, exfoliating bark and in crevices and cavities. However, this species is also dependent on the forest structure surrounding roost trees. Because the presence of a state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. The ODNR recommends tree 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. The ODNR also recommends that a winter bat habitat assessment is conducted to determine if potential hibernacula are present within the Project area. If a potential or known hibernaculum is found, the ODNR recommends a 0.25-mile tree cutting buffer around the hibernaculum entrance. Limited summer or winter tree cutting may be acceptable after consultation with the ODNR. If a habitat assessment for projects involving subsurface disturbance finds that a potential hibernaculum is present within 5 miles of the Project area, please consult with Eileen Wyza for project recommendations. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact this species. **USFWS** – No comments received.	Potentially suitable summer roosting and foraging habitat was observed within the Project area. It is anticipated that AEP will conduct any tree clearing required for the Project between October 1 and March 31. If any summer tree clearing is required, AEP will proceed with agency recommendations to avoid impacts to this species. Additionally, a desktop bat hibernacula habitat assessment was completed by Stantec. No active or abandoned underground mines, karst features, or areas of karst geology were identified within 0.25 miles of the Project area as a result of the assessment (Appendix A, Figure 4). No potential bat hibernacula were observed within the Project area. **Avoidance Dates: April 1 – September 30**

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Tricolored Bat/ *Perimyotis subflavus*	E	PE	The tricolored bat is found throughout Ohio. This species has been found to forage above and within a variety of habitats, including woodlands, agricultural fields, grassy areas, and over streamside vegetation (Sparks et al. 2011). Maternity colonies have often been found within clusters of dead leaves, hanging in trees. Maternity colonies have also been found in or on buildings. Little is known of male tricolored bats in summer, but it is thought that they are probably solitary and spend their days in similar situations, as well as crevices, caves and mines (Brack et al. 2010). In Ohio, this species typically utilizes caves and mines as hibernacula, utilizing a variety of situations, including very cold areas near cave entrances to deeper passages that seem to be too warm for other species of bats (Brack et al. 2010).	Potentially suitable summer foraging habitat was observed in early successional deciduous forest habitat within the Project area. One potentially suitable roost tree was observed within the Project area (Figure 3). No potential bat hibernacula were observed within the Project area.	**ODNR** - The entire state of Ohio is within the range of the tricolored bat, a state endangered and federally proposed endangered species. During the spring and summer (April 1 through September 30), this bat species predominately roosts in trees behind loose, exfoliating bark, in crevices and cavities, or in clusters of dead leaves. However, this species is also dependent on the forest structure surrounding roost trees. The ODNR recommends tree 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. The ODNR also recommends that a winter bat habitat assessment is conducted to determine if potential hibernacula are present within the Project area. If a potential or known hibernaculum is found, the ODNR recommends a 0.25-mile tree cutting buffer around the hibernaculum entrance. Limited summer or winter tree cutting may be acceptable after consultation with the ODNR. If a habitat assessment for projects involving subsurface disturbance finds that a potential hibernaculum is present within 5 miles of the Project area, please consult with Eileen Wyza for project recommendations. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact this species. **USFWS** - Due to the project type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species, or proposed or designated critical habitat.	Potentially suitable summer roosting and foraging habitat was observed within the Project area. It is anticipated that AEP will conduct any tree clearing required for the Project between October 1 and March 31. If any summer tree clearing is required, AEP will proceed with agency recommendations to avoid impacts to this species. Additionally, a desktop bat hibernacula habitat assessment was completed by Stantec. No active or abandoned underground mines, karst features, or areas of karst geology were identified within 0.25 miles of the Project area as a result of the assessment (Appendix A, Figure 4). No potential bat hibernacula were observed within the Project area. **Avoidance Dates: April 1 – September 30**
Birds						
Northern Harrier/ *Circus hudsonius*	E	N/A	Harriers hunt low over grasslands, with wings held in a distinctive dihedral (V-shape). This is a common migrant and winter species in Ohio. Nesters are much rarer, although they occasionally breed in large marshes and grasslands (ODNR 2018). Northern harriers appear to be associated with large tracts of undisturbed habitat. They are uncommon in blocks of contiguous grasslands less than 100 hectares (Slater and Rock 2005).	No suitable nesting habitat (large marshes and grasslands) was observed within the Project area.	**ODNR** - The Project is within the range of the northern harrier. This is a common migrant and winter species in Ohio. Nesters are much rarer, although they occasionally nest in loose colonies in large marshes and grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the Project is not likely to impact this species.	Northern harriers require large tracts of wetlands and/or grasslands that are 100 hectares (247 acres) or more for suitable breeding/nesting habitat (Slater and Rock 2005). No suitable nesting habitat (large tracts of marshes and/or grasslands) was observed within the Project area. Therefore, no impacts are anticipated, and avoidance dates are not applicable.

Common Name/ Scientific Name	State Listed Status[1,2]	Federally Listed Status[1,3]	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
					USFWS - No comments received.	
Sandhill Crane/*Antigone canadensis*	T	N/A	Breeding habitat includes open grasslands, marshes, marshy edges of lakes and ponds, and riverbanks. Nests are on the ground or in shallow water on open tundra, large marshes, bogs, fens, or wet forest meadows. Individuals exhibit high fidelity to breeding territories. During the nonbreeding season, sandhill cranes roost at night in shallow water along river channels, on alluvial islands of braided rivers, or in natural basin wetlands. A communal roost site consisting of an open expanse of shallow water is a key feature of wintering habitat. (NatureServe 2025)	No suitable roosting or nesting habitat (large areas of wet meadow, shallow marsh, or bog) was observed within the Project area.	**ODNR** - The project is within the range of the sandhill crane. Sandhill cranes are primarily a wetland-dependent species. On their wintering grounds, they will utilize agricultural fields; however, they roost in shallow, standing water or moist bottomlands. On breeding grounds, they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. If grassland, prairie, or wetland habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 through August 31. If this habitat will not be impacted, this project is not likely to have an impact on this species. **USFWS** - No comments received.	Sandhill cranes roost in shallow, standing water or moist bottomlands. On breeding grounds, they require large tracts of wet meadow, shallow marsh, or bog for nesting. No suitable roosting or nesting habitat (large areas of wet meadow, shallow marsh, or bog) was observed within the Project area. Therefore, no impacts are anticipated, and avoidance dates are not applicable.

[1]E=Endangered; T=Threatened; PE=Proposed Endangered; SC=Species of Concern; N/A=Not Applicable
[2]According to ODNR, State Listed Wildlife and Plant Species by County (ODNR 2025a).
[3]According to the USFWS Information for Planning and Consultation website (USFWS 2025).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Stantec conducted a wetland and waterbodies delineation and a preliminary habitat assessment for threatened and endangered species within the Project area on August 5, 2025. One isolated palustrine emergent wetland totaling approximately 0.05 acres was identified within the Project area. No streams or open water features were identified within the Project area. See Table 2 for more information regarding the wetland identified within the Project area. Data forms for the identified wetland are provided in Appendix D and representative photographs of the wetland identified within the Project area are provided in Appendix C.

The information provided by Stantec regarding wetland and stream boundaries is based on an analysis of the wetland and upland conditions present within the Project area at the time of the field work. The delineations were performed by experienced and qualified professionals using regulatory agency-accepted practices and sound professional judgment.

An ODNR Ohio Natural Heritage Program data request and environmental review request letter was sent to the ODNR Office of Real Estate on June 3, 2025. The ODNR Office of Real Estate response letter dated June 30, 2025 (Appendix B) states that a review of the Ohio Natural Heritage Database indicates records of the state species of concern Tippecanoe darter and the state endangered spotted darter are known from within one mile of the specified Project area. These species are not recorded within the boundaries of the Project area. Additionally, no perennial streams were identified within the Project area. Therefore, this Project is not likely to impact these species.

According to the ODNR, the entire state of Ohio is within the range of the Indiana bat, northern long-eared bat, tricolored bat, and little brown bat. The Project area is also within the vicinity of known records of the little brown bat. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in clusters of dead leaves. Because the presence of a state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. The ODNR recommends tree 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 inches if possible.

The ODNR also recommends that a winter bat habitat assessment is conducted to determine if potential hibernacula are present within the project area. This is to limit possible disturbances that seasonal tree clearing and/or subsurface work (e.g., trenching, blasting, etc.) may cause to hibernating bats. Potential hibernacula include rocky outcroppings, caves, and underground mines. If a potential or known hibernaculum is found, the ODNR recommends a 0.25-mile tree cutting buffer around the hibernaculum entrance. Limited summer or winter tree cutting may be acceptable after consultation with the ODNR. If the habitat assessment for projects involving subsurface disturbance finds that a potential hibernaculum is present within 5 miles of the project

area, please consult with Eileen Wyza for project recommendations. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species. Stantec completed a desktop habitat assessment in accordance with the 2024 Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines (USFWS 2024) utilizing available ODNR websites, including data on known abandoned or active mines (ODNR 2025b) and locations of known or suspected karst geology (ODNR 2025c). No abandoned or active underground mines or karst features were identified within 0.25 miles of the Project area as a result of the assessment (Appendix A, Figure 4). No underground openings, caves, or any other potentially suitable bat hibernacula were observed within the Project area during the field surveys completed by Stantec. Therefore, no impacts to potential bat hibernacula are anticipated.

Potentially suitable summer roosting and foraging habitat (early successional deciduous forest habitat) for the Indiana bat, northern long-eared bat, tricolored bat, and little brown bat was observed within the Project area. It is anticipated that AEP will conduct any required tree clearing activities between October 1 and March 31 in order to avoid impacts to these species. If any summer tree clearing is required, AEP will proceed with agency recommendations to avoid impacts to these bat species.

The ODNR response states that the Project is within the range of the northern harrier, a state endangered bird. Northern harriers require large tracts of wetlands and/or grasslands that are 100 hectares (247 acres) or more in size for suitable breeding/nesting habitat (Slater and Rock 2005). No suitable nesting habitat (large tracts of wetlands and/or grasslands) was observed within the Project area. Therefore, no impacts are anticipated, and avoidance dates are not applicable.

In addition to the northern harrier, the ODNR response states the Project is within the range of the sandhill crane, a state threatened species. Sandhill cranes require open grasslands, marshes, marshy edges of lakes and ponds, and riverbanks for breeding and shallow water or wetlands during other times of the year (NatureServe 2025). The ODNR stated that on their breeding grounds, they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. If large areas of grassland, prairie, or wetland habitats will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 through August 31. If this habitat will not be impacted, this project is not likely to have an impact on this species. No suitable nesting habitat (large areas of wet meadow, shallow marsh, or bog) was observed within the Project area. Therefore, no impacts are anticipated, and avoidance dates are not applicable.

According to the ODNR, the Project is within the range of the federally endangered and state endangered rayed bean, snuffbox, clubshell, fanshell, northern riffleshell, and purple cat's paw mussels and federally threatened and state endangered rabbitsfoot. Additionally, the Project is within the range of the state endangered butterfly, ebonyshell, elephant-ear, long-solid, Ohio pigtoe, pyramid pigtoe, sharp-ridged pocketbook, and washboard and the state threatened salamander and pondhorn mussels. However, no in-water work is proposed in a perennial stream. Therefore, this Project is not likely to impact these species.

The ODNR response letter also stated that the Project is within the range of the state endangered bigeye shiner, goldeye, northern brook lamprey, northern madtom, shortnose gar, spotted darter,

and shovelnose sturgeon and state threatened blue sucker, lake chubsucker, and paddlefish. Additionally, the ODNR stated that the Project is within one mile of known records of the spotted darter and state species of concern Tippecanoe darter. However, no in-water work is proposed in a perennial stream. Therefore, this Project is not likely to impact these species.

A technical assistance request letter was submitted to the USFWS on June 3, 2025. The USFWS response letter dated June 4, 2025 (Appendix B), stated that due to the Project type, size, and location they do not anticipate adverse effects to federally endangered, threatened, or proposed species or proposed or designated critical habitat.

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Appendix A FIGURES

A.1 FIGURE 1 – PROJECT LOCATION MAP

Figure No.
1

Title
Project Location Map

Client/Project
AEP Ohio Transmission Company, Inc.
Endor Switch Project

193711425

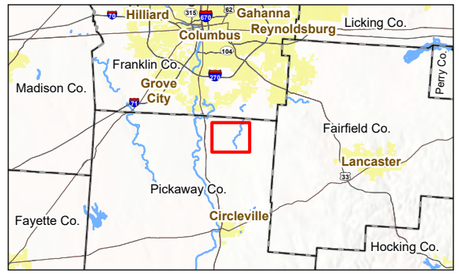
Project Location
Pickaway Co., OH

Prepared by RA on 2025-08-20
TR by KLB on 2025-08-20
IR by DJG on 2025-08-21

N

0 1,000 2,000 Feet
(At original document size of 11x17)
1:24,000

Legend
- Existing Structure to be Removed
- Proposed Structure
- Existing 138kV Transmission Line
- Proposed 138kV Transmission Line
- Project Area



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources: Stantec, AEP, Esri, USCB, USGS
3. Background: USGS 7.5' Topographic Quadrangles - Lockbourne, OH (1985)

Stantec

A.2 FIGURE 2 – WETLAND AND WATERBODY DELINEATION MAP

Figure No.
2

Title
Wetland and Waterbody Delineation Map

Client/Project 193711425
AEP Ohio Transmission Company, Inc.
Endor Switch Project

Project Location
Pickaway Co., OH

Prepared by RA on 2025-08-20
TR by KLB on 2025-08-20
IR by DJG on 2025-08-21

N

0 100 200 Feet
(At original document size of 11x17)
1:2,400

Legend
- Existing Structure to be Removed
- Proposed Structure
- Existing 138kV Transmission Line
- Proposed Transmission Line
- Project Area
- Wetland Determination Sample Point
- Photo Location
- Field Delineated Emergent Wetland
- National Wetlands Inventory Feature

FEMA Flood Hazard Area
- 100-year Floodplain
- Floodway*

*No features within data frame

Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources: Stantec, AEP, Esri, USCB, USGS, USFWS, FEMA
3. Background: NAIP 2023

Stantec

A.3 FIGURE 3 – HABITAT ASSESSMENT MAP

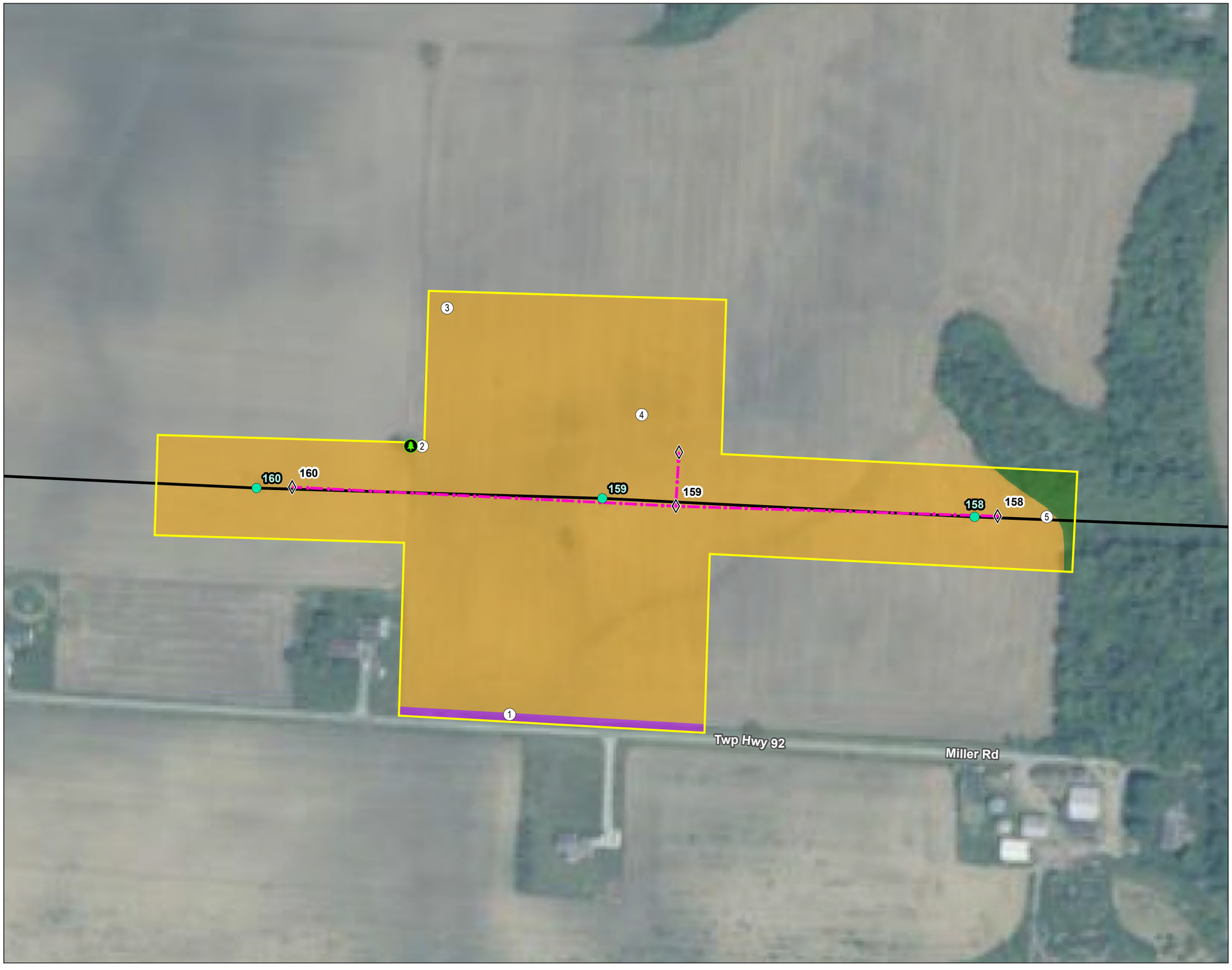


Figure No.
3

Title
Habitat Assessment Map

Client/Project
AEP Ohio Transmission Company, Inc.
Endor Switch Project

193711425

Project Location
Pickaway Co., OH

Prepared by RA on 2025-08-20
TR by KLB on 2025-08-20
IR by DJG on 2025-08-21

N

0 100 200 Feet
(At original document size of 11x17)
1:2,400

Legend
- Existing Structure to be Removed
- Proposed Structure
- Existing 138kV Transmission Line
- Proposed 138kV Transmission Line
- Project Area
- Potential Bat Roost Tree
- Photo Location

Habitat Area
- Agricultural Land
- New Field
- Early Successional Deciduous Forest

Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources: Stantec, AEP, Esri, USCB, USGS
3. Background: NAIP 2023

Stantec

A.4 FIGURE 4 – BAT HIBERNACULA DESKTOP STUDY MAP

Figure No.
4

Title
Bat Hibernacula Desktop Study Map

Client/Project
AEP Ohio Transmission Company, Inc.
Endor Switch Project

193711425

Project Location
Pickaway Co., OH

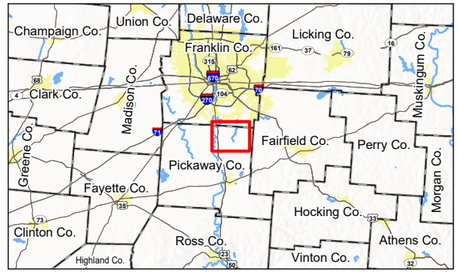
Prepared by RA on 2025-08-20
TR by KLB on 2025-08-20
IR by DJG on 2025-08-21

N

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000

Legend
- Project Area
- 0.25-Mile Project Area Buffer
- 0.5-Mile Project Area Buffer
- 3-Mile Project Area Buffer
- Karst Feature*
- Area of Karst Geology
- Mine Opening*
- Underground Mine*

*No features within data frame



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources: Stantec, AEP, Esri, USCB, USGS, ODNR
3. Background: USGS 7.5' Topographic Quadrangles - Lockbourne, OH (1985)

Stantec

Appendix B AGENCY CORRESPONDENCE

Department of Natural Resources
ohiodnr.gov

Mike DeWine, *Governor*
Jim Tressel, *Lt. Governor*
Mary Mertz, *Director*

Office of Real Estate & Land Management
Tara Paciorek - Chief
2045 Morse Road – E-2
Columbus, Ohio 43229-6693

June 30, 2025

Daniel Godec
Stantec Consulting Services Inc.
11687 Lebanon Road
Cincinnati, Ohio 45241

Re: 25-0856_Endor Switch

Project: The proposed project involves the installation of a 3-way POP switch at or near Structure 159 on the Lockbourne-Good Hope Switch 138 kV transmission line and building a new 0.1-mile 138 kV radial transmission line to the customer's new substation.

Location: The proposed project is located in Madison Township, Pickaway 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 the following data within one mile of the project area:

Spotted Darter (*Etheostoma maculatum*), E
Tippecanoe Darter (*Etheostoma tippecanoe*), SC

Conservation status abbreviations are as follows: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federally endangered, and FT = federally threatened. The review was performed on the specified project area as well as an additional one-mile radius. Records searched date from 1980. Features searched include locations of rare and endangered plants and animals determined to be of value to the conservation of their species, high quality plant communities, animal breeding assemblages, and outstanding geological features.

The species listed above are not recorded within the boundaries of the specified project area. However, please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for an area is not a statement that rare species or unique features are absent from that area.

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

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

The project is within the vicinity of records for the little brown bat (*Myotis lucifugus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, 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 endangered 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 bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in clusters of dead leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree 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.

For every project, the DOW also recommends that a winter bat habitat assessment is conducted to determine if potential hibernacula are present within the project area. This is to limit possible disturbances that seasonal tree clearing and/or subsurface work (e.g., trenching, blasting, etc.) may cause to hibernating bats. Potential hibernacula include rocky outcroppings, caves, and underground mines. Direction on how to conduct winter habitat assessments can be found in the joint guidance OHIO DIVISION OF WILDLIFE AND U.S. FISH AND WILDLIFE SERVICE JOINT GUIDANCE FOR BAT SURVEYS AND TREE CLEARING. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting buffer around the hibernaculum entrance. Limited summer or winter tree cutting may be acceptable after consultation with the DOW. If a habitat assessment for projects involving subsurface disturbance finds that a potential hibernaculum is present within 5 miles of the project area, please consult with Eileen Wyza for project recommendations. 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*)
fanshell (*Cyprogenia stegaria*)
northern rifffleshell (*Epioblasma torulosa rangiana*)
purple cat's paw (*Epioblasma obliquata*)
rayed bean (*Villosa fabalis*)
snuffbox (*Epioblasma triquetra*)

Federally Threatened
rabbitsfoot (*Theliderma cylindrica*)

State Endangered
butterfly (Ellipsaria lineolata)
ebonyshell (*Fusconaia ebenus*)
elephant-ear (Elliptio crassidens)
long-solid (*Fusconaia subrotunda*)
Ohio pigtoe (*Pleurobema cordatum*)
pyramid pigtoe (*Pleurobema rubrum*)
sharp-ridged pocketbook (*Lampsilis ovata*)
washboard (*Megalonaias nervosa*)

State Threatened
pondhorn (*Uniomerus tetralasmus*)
Salamander Mussel (*Simpsonaias ambigua*)

Due to the location, and that there is no in-water work proposed in a perennial stream, 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*)
northern brook lamprey (*Ichthyomyzon fossor*)
northern madtom (*Noturus stigmosus*)
shortnose gar (*Lepisosteus platostomus*)
spotted darter (*Etheostoma maculatum*)
shovelnose sturgeon (S*caphirhynchus platorynchus*)

State Threatened
blue sucker (*Cycleptus elongatus*)
lake chubsucker (*Erimyzon sucetta*)
paddlefish (*Polyodon spathula*)

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

The project is within the range of the northern harrier (*Circus hudsonius*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the sandhill crane (*Antigone canadensis*), a state threatened species. Sandhill cranes are primarily a wetland-dependent species. On their wintering grounds, they will utilize agricultural fields; however, they roost in shallow, standing water or moist bottomlands. On

breeding grounds, they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. If grassland, prairie, or wetland habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 through August 31. If this habitat will not be impacted, this project is not likely to have an impact on this species.

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

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

If the subject project is in a floodplain regulated by the Federal Emergency Management Agency (FEMA), the local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals. The FEMA National Flood Hazard Layer (NHFL) Viewer website can be utilized to see if the project is in a FEMA regulated floodplain. If the project is not in a FEMA regulated floodplain, then no further action is required.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew (Environmental Services Administrator) at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Expiration: *ODNR Environmental Reviews are typically valid for 2 years from the issuance date. If the scope of work, project area, construction limits, and/or anticipated impacts to natural resources have changed significantly from the original project submittal, then a new Environmental Review request should be submitted.*

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994

June 4, 2025

Project Code: 2025-0104906

Dear Mr. Godec:

The U.S. Fish and Wildlife Service (Service) 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 effects 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: Due to the project, type, size, and location, we do not anticipate adverse effects to federally endangered, threatened, or proposed species or proposed or designated critical habitat. If there are any project modifications during the term of this action, or additional information for listed or proposed species or their critical habitat becomes available, or if new information reveals effects of the action that were not previously considered, then please contact us for additional project review.

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,

Erin Knoll
Field Office Supervisor

Appendix C REPRESENTATIVE PHOTOGRAPHS

C.1 WETLAND AND WATERBODY PHOTOGRAPHS

Photograph Location 1. View of upland (new field habitat) at wetland determination sample point location SP01. Photograph taken facing east.

Photograph Location 1. View of upland (new field habitat) at wetland determination sample point location SP01. Photograph taken facing west.

Photograph Location 2. View of Wetland 1. Photograph taken facing north.

Photograph Location 2. View of Wetland 1. Photograph taken facing east.

Photograph Location 2. View of Wetland 1. Photograph taken facing south.

Photograph Location 2. View of Wetland 1. Photograph taken facing west.

Photograph Location 2. View of soil profile at wetland determination sample point location SP02.

Photograph Location 3. View of upland (agricultural land) at wetland determination sample point location SP03. Photograph taken facing north.

Photograph Location 3. View of upland (agricultural land) at wetland determination sample point location SP03. Photograph taken facing south.

C.2 HABITAT PHOTOGRAPHS

Photograph Location 1. Representative view of new field habitat and agricultural land within the Project area. Photograph taken facing east.

Photograph Location 2. Representative view of potential bat roost tree within the Project area. Photograph taken facing west.

Photograph Location 3. Representative view of agricultural land within the Project area. Photograph taken facing west.

Photograph Location 4. Representative view of agricultural land within the Project area. Photograph taken facing east.

Photograph Location 5. Representative view of early successional deciduous forest within the Project area. Photograph taken facing northeast.

Appendix D DATA FORMS

D.1 WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Endor Switch Project | City/County: Pickaway County | Sampling Date: 08/05/2025

Applicant/Owner: AEP Ohio Transmission Company, Inc. | State: OH | Sampling Point: SP01

Investigator(s): Abbey Dunn, Malea Casey | Section, Township, Range: S30, T010N, R021W

Landform (hillside, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope %: 3

Subregion (LRR or MLRA): LRR M, MLRA | Lat: 39.763533 | Long: -82.929969 | Datum: WGS84

Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes | NWI classification:

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: (Explain alternative procedures here or in a separate report.)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. *Schedonorus arundinaceus*	70	Yes	FACU
2. *Setaria faberi*	15	No	FACU
3. *Trifolium pratense*	10	No	FACU
4. *Taraxacum officinale*	10	No	FACU
5. *Melilotus officinale*	10	No	FACU
6. *Plantago major*	5	No	FAC
7. *Erigeron canadensis*	2	No	FACU
8.			
9.			
10.			
	122 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0 = Total Cover		

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	117	x 4 =	468
UPL species	0	x 5 =	0
Column Totals:	122 (A)		483 (B)

Prevalence Index = B/A = 3.96

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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

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

SOIL

Sampling Point: SP01

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 2/1	100					Clay Loam	
13-16	10YR 2/1	45					Clay Loam	
13-16	10YR 5/3	45	7.5YR 5/6	10	C	M	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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present	Yes ___	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:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Endor Switch Project | City/County: Pickaway County | Sampling Date: 08/05/2025

Applicant/Owner: AEP Ohio Transmission Company, Inc. | State: OH | Sampling Point: SP02

Investigator(s): Malea Casey, Abbey Dunn | Section, Township, Range: S30, T010N, R021W

Landform (hillside, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope %: 0

Subregion (LRR or MLRA): LRR M, MLRA | Lat: 39.764515 | Long: -82.929665 | Datum: WGS84

Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes | NWI classification:

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

Are Vegetation X, Soil X, 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: (Explain alternative procedures here or in a separate report.)

Wetland is surrounded by agricultural land that is seasonally tilled and planted. Wetland has historically been tilled and planted based on dead vegetation. Large tire ruts from farm equipment observed.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. *Cyperus strigosus*	55	Yes	FACW
2. *Xanthium strumarium*	40	Yes	FAC
3. *Lindernia dubia*	15	No	OBL
4. *Schedonorus arundinaceus*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	55	x 2 =	110
FAC species	40	x 3 =	120
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	115 (A)		265 (B)

Prevalence Index = B/A = 2.30

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.

Hydrophytic Vegetation Present? **Yes** X **No** ____

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

SOIL

Sampling Point: SP02

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					Silty Clay Loam	
8-16	10YR 2/1	30					Silty Clay Loam	
8-16	10YR 4/2	50	10YR 5/6	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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

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)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X 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** X **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Endor Switch Project | City/County: Pickaway County | Sampling Date: 08/05/2025

Applicant/Owner: AEP Ohio Transmission Company, Inc. | State: OH | Sampling Point: SP03

Investigator(s): Malea Casey, Abbey Dunn | Section, Township, Range: S30, T010N, R021W

Landform (hillside, terrace, etc.): Terrace | Local relief (concave, convex, none): Linear | Slope %: 0

Subregion (LRR or MLRA): LRR M, MLRA | Lat: 39.764696 | Long: -82.929596 | Datum: WGS84

Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes | NWI classification:

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

Are Vegetation X, Soil X, 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.)

X

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 X	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)
Data point taken in an actively farmed field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. *Glycine max*	95	Yes	UPL
2. *Xanthium strumarium*	5	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0 = Total Cover		

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	95	x 5 =	475
Column Totals:	100 (A)		490 (B)

Prevalence Index = B/A = 4.9

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.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: SP03

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
0-16	10YR 4/2	100					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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

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)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present	Yes ___	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** X **No** ____

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

Remarks:

Crust may be from standing water caused by compaction from agricultural processes

D.2 ORAM DATA FORMS

Background Information

Name:	Malea Casey
Date:	8/5/25
Affiliation:	Stantec Consulting Services, Inc.
Address:	10200 Alliance Rd. Suite 300 Blue Ash, OH
Phone Number:	513-526-4084
e-mail address:	malea.casey@stantec.com
Name of Wetland:	Wetland 1
Vegetation Communit(ies):	PEM
HGM Class(es):	Depressional

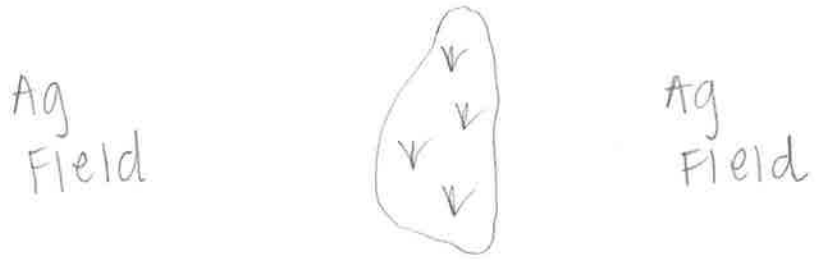
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Lat/Long or UTM Coordinate	39.764476, -82.729654
USGS Quad Name	Lockbourne, OH
County	Pickaway
Township	
Section and Subsection	
Hydrologic Unit Code	050600011605
Site Visit	8/5/25
National Wetland Inventory Map	N/a
Ohio Wetland Inventory Map	N/a
Soil Survey	Crosby silt loam, Southern Ohio Till Plain, 0 to 2 Percent slopes
Delineation report/map	See Ecological Resources Report

Name of Wetland: Wetland 1	
Wetland Size (acres, hectares): 0.05 acres	

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.

N



Comments, Narrative Discussion, Justification of Category Changes:

Final score : 10	**Category:** 1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	√	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	√	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	√	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	√	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	√	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap . The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES *Wetland should be evaluated for possible Category 3 status* Go to Question 2	(NO) *Go to Question 2*
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands.** Is the wetland less than 0.5 hectares (1 acre) in size and **hydrologically isolated** and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis*, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	(NO) Go to Question 8b

8b	**Mature forested wetlands**. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands**. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	**Relict Wet Prairies**. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland 1	Rater(s): M. Casey	Date: 9/9/25

Metric 1. Wetland Area (size).

max 6 pts. | subtotal: 0 | 0

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)

Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal: 1 | 1

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), shrub land, 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.

max 30 pts. | subtotal: 4 | 5

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)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [x] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other farming

Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal: 3 | 8

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)
- [ ] Poor to fair (2)
- [x] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [x] 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
- [x] farming
- [ ] nutrient enrichment

subtotal this page: 8

last revised 1 February 2001 jjm

Site: Wetland 1	Rater(s): M. Casey	Date: 8/5/25

8
subtotal first page

Metric 5. Special Wetlands.

0 max 10 pts. | 8 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. | 10 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)
- [X] 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)
- [X] 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

10

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	4	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	10	Category based on score breakpoints Category 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	(NO)	Is quantitative rating score *less* than the Category 2 scoring threshold (*excluding* gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	(NO)	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	(NO)	Is quantitative rating score *greater* than the Category 2 scoring threshold *(including* any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	(YES) Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the *"gray zone"* for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	(NO)	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit *moderate OR superior* hydrologic OR habitat, OR recreational functions AND the wetland was *not* categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	(NO) Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.