

Letter of Notification for Bellefonte Extension 138 kV Line Rebuild Project



An **AEP** Company

BOUNDLESS ENERGY™

PUCO Case No. 21-0111-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.

May 27, 2021

LETTER OF NOTIFICATION

**AEP Ohio Transmission Company, Inc. (AEP Ohio Transco)
Bellefonte Extension 138 kV Line Rebuild Project**

4906-6-05

AEP Ohio Transmission Company, Inc. (“AEP Ohio Transco” or the “Company”) provides the following information to the Ohio Power Siting Board (“OPSB”) pursuant to Ohio Administrative Code Section 4906-6-05.

4906-6-05(B) General Information

B(1) Project Description

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

The Company proposes to construct the Bellefonte Extension 138 kilovolt (kV) Line Rebuild Project in Lawrence County, Ohio (the “Project”). The Project begins at the existing Millbrook Park-South Point 138 kV Transmission Line in Perry Township, Ohio and ends at the existing Bellefonte Substation in Westwood, Kentucky. The total length of the overall transmission line is approximately four miles. The Project represents approximately three miles with the remaining, approximately one mile, located in Boyd County, Kentucky.

The Project involves rebuilding an existing double-circuit 138 kV transmission line within existing and new right-of-way (“ROW”). The existing double-circuit steel lattice structures will be generally replaced with double-circuit steel monopole structures. The majority of the Project will be rebuilt within the Ohio Power Company’s existing transmission line ROW; however, approximately 0.6 mile of transmission line will be relocated outside of existing ROW due to constraints and proximity to a major waterway (Ice Creek). Figures 1 and 2 (Appendix A) show the location of the Project. Figure 2 in Appendix A shows the proposed centerline and ROW for the Project. The Project meets the requirements for a Letter of Notification (“LON”) because it is within the types of projects defined by item 2(b) of Ohio Administrative Code Section 4906-1-01 Appendix A of the Application Requirement Matrix for Electric Power Transmission Lines:

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

(b) More than two miles.

The Project has been assigned PUCO Case No. 21-0111-EL-BLN.

B(2) Statement of Need

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

The project will rebuild approximately four miles of transmission line (three miles in Ohio) and is a part of a larger area improvements project. The larger area improvements project includes rebuilding an additional 34.7 miles of the Millbrook Park-South Point 138 kV transmission line, which will be submitted to the OPSB under a separate cover. The Project that is the subject of this LON is necessary in order to replace deteriorating infrastructure. The existing towers and conductors are original 1952 equipment with eight outages since 2015. The majority of the existing structures (12 of the 17 or 71% of the whole line) have asset renewal concerns, which include broken insulators, damaged cross members, and burnt insulators. The Project will reduce the number of outages on the line and increase overall reliability. Failure to move forward with the proposed Project will result in reduced reliability over time and, potentially, preemptive load shedding as the existing line assets continue to deteriorate.

Retirement of the line is not a viable alternative because the line is needed to serve the subtransmission network at Bellefonte Station and growing load demand. Using the 2025 RTEP summer case, if this line is removed from service, the 69 kV lines between the Kenova and Ashland substations will overload under certain contingency scenarios. Although eliminating the existing Bellefonte Extension 138 kV line would not result in any direct loss of load, it would cause overloads on the underlying 69 kV network, exposing population centers in the Tri-State area to outages. Furthermore, the Project is important to support potential future load growth in the region.

The need and solution for the Project was presented to PJM on 5/03/2019 and 5/07/2020, then subsequently assigned a PJM Number of s2272.2. The existing Bellefonte–East Wheelersburg circuit is included as an existing project in Form FE-T9 of Ohio Power Company’s 2021 Long-Term Forecast Report on page 85 of 108 (Appendix B).

B(3) Project Location

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

The Project is located in Upper Township, Perry Township, and the Village of Coal Grove, in Lawrence County, Ohio. Figures 1 and 2 in Appendix A show the location of the proposed Project in relation to existing transmission facilities, including existing substations and other transmission lines.

B(4) Alternatives Considered

The applicant shall describe the alternatives considered and reasons why the proposed location or route is best suited for the proposed facility. The discussion shall include, but not

be limited to, impacts associated with socioeconomic, ecological, construction, or engineering aspects of the project.

The majority of the proposed transmission line rebuild work will occur within existing Ohio Power Company's ROW (see Figures 1 and 2 in Appendix A). Much of the Proposed Route is along the existing transmission line centerline; however, approximately 0.6 mile is proposed to be rebuilt on new ROW due to Project area constraints. The existing transmission line crosses the US 52 and Marion Pike overpass and is located on the edge of Ice Creek, where the current tower foundations have been compromised by erosion of the streambank. The Company conducted an alternatives analysis that included reviewing four alternative routes and two minor route diversions within the Project Focus Area (see Figure 3 in Appendix A). Based on desktop and field examination, the Company concluded that the Proposed Route, shown on Figure 2 in Appendix A, was the most suitable route for the Project. The goal of selecting a suitable route for the Project was to minimize impacts on land use and natural and cultural resources while avoiding circuitous routes, significantly higher costs, and non-standard design requirements. The Proposed Route was selected because it has the least amount of impacts to streams, riparian buffers, floodplains, and forested wetlands, avoids signage and underground utilities, avoids the US52/Marion Pike (State Route 243) overpass, avoids placing structures in Ohio Department of Transportation ("ODOT") ROW, and avoids potential Ice Creek streambank erosion risks. The selection of the Proposed Route was based on siting decisions made throughout the process, the knowledge of subject matter experts from the Company and the Company's consultant, and a comparative analysis of potential impacts.

Finally, the Proposed Route is short, efficient, direct, and represents the most suitable location and most appropriate solution for meeting the Company's needs in the area. Socioeconomic, land use, and ecological information is presented in Section B(10).

B(5) Public Information Program

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

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

B(6) Construction Schedule

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

Tree clearing will begin in October 2021 and transmission line construction for the Project is planned to begin in January 2022. The anticipated in-service date will be approximately July of 2022.

B(7) Area Map

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

Appendix A, Figure 1 provides a map with existing and proposed facilities, and clearly marked roads and highways at 1:48,000 and Figure 2 provides an aerial image showing roads and highways, clearly marked with Project components, at a scale of 1:7,200.

To visit the Project from Columbus, take I-71 South toward Cincinnati (4.4 miles). Take exit 101 to merge onto I-270 toward Wheeling (0.5 miles). Keep left to merge onto I-270 East (1.9 miles). Take exit 52 to merge onto US-23 South toward Circleville (39.9 miles). Take the US-23 exit toward Waverly/US-50 W/Portsmouth (0.9 miles). Continue onto US-23 South for 30.6 miles and take exit toward State Route 823 (0.7 miles). Continue on State Route 823 for 16.5 miles. Merge onto US-52 East and continue for 24.9 miles. Turn left onto Crabtree Hollow and follow for 0.7 miles before continuing onto Hog Back Road. Turn right onto Hoop Pole Creek Road North after 0.6 miles. In 0.3 miles the location of the easternmost portion of the Project will be on the right.

B(8) Property Agreements

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

The Project will primarily be constructed within existing ROW; however, portions of the Project will be constructed outside of the existing ROW. New easements will be needed for the approximately 0.6 mile of transmission line to be located outside of existing ROW. Supplemental easements will be required for approximately one mile of the line due to minor deviations from the centerline. A table of property parcel numbers and road crossing names with an indication as to whether the easement necessary to construct and operate the facility has been obtained is provided in Appendix C.

B(9) Technical Features

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

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

The transmission line construction is estimated to include the following:

Voltage: 138 kV
Conductors: 795 KCM ACSR
Static Wire: 7#8 Alumoweld & 96 Fiber OPGW
Insulators: Non-ceramic, polymer
ROW Width: 100 Feet
Structure Type: One (1) double circuit, steel lattice tower
Ten (10) double circuit, steel monopole suspension structures
Five (5) double circuit, steel dead-end monopole structures
One (1) double circuit, steel three-pole dead-end structures

The Ohio River crossing will have two 96 fiber OPGW shield wires rather than the OPGW and Alumoweld.

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.

(i) Calculated Electric and Magnetic Field Strength Levels

Three loading conditions were examined: (1) Normal Maximum Loading, (2) Emergency Loading, and (3) Winter Normal Conductor Rating, consistent with the OPSB requirements. Normal Maximum Loading represents the peak flow expected with all system facilities in service; daily/hourly flows fluctuate below this level. Emergency loading is the maximum current flow during unusual (contingency) conditions, which exist only for short periods of time. Winter normal (WN) conductor rating represents the maximum current flow that a line, including its terminal equipment, can carry during winter conditions. It is not anticipated that either circuit of this line would operate at its WN rating in the foreseeable future.

EMF levels were computed one meter above ground under the line and at the ROW edges (50/50 feet, left/right, of centerline). The results, calculated using Electric Power Research Institute's ("EPRI's") EMF Workstation 2015 software, are summarized below.

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Bellefonte Extension 138KV Line				
Condition	Bellefonte - North Proctorville/ Bellefonte - East Wheelersburg Load (A)	Minimum Ground Clearance (feet)	Electric Field (kV/m)*	Magnetic Field (mG)*
(1) Normal Max. Loading [^]	306.27/136.87	46.1	0.32/1.26/0.32	13.84/21.68/11.64
(2) Emergency Line Loading ^{^^}	421.84/165.69	40.7	0.30/1.5/0.30	20.92/34.96/16.79
(3) Winter Conductor Rating ^{^^^}	2167.20/2167.20	46.1	0.32/1.26/0.32	124.04/206.19/124.04

*EMF levels (left ROW edge/maximum/right ROW edge) computed one meter above ground at the point of minimum ground clearance, assuming balanced phase currents and 1.0 P.U. Voltages. ROW width is 50 feet (left) and 50 feet (right) of centerline, respectively.

[^]Peak line flow expected with all system facilities in service.

^{^^}Maximum flow during a critical system contingency

^{^^^}Maximum continuous flow that the line, including its terminal equipment, can withstand during winter conditions.

For power-frequency EMF, IEEE Standard C95.6TM-2002 recommends the following limits:

	General Public	Controlled Environment
	-----	-----
Electric Field Limit (kV/m)	5.0	20.0
Magnetic Field Limit (mG)	9,040	27,100

The above EMF levels are well within the limits specified in IEEE Standard C95.6TM-2002. Those limits have been established to "prevent harmful effects in human beings exposed to electromagnetic fields in the frequency range of 0-3 kHz."

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

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

Design alternatives were not considered due to the EMF strength levels. Transmission lines, when energized, generate EMF. Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. However, some people are concerned that EMF have impacts on human health. Due to these concerns, EMF associated with the new circuits was calculated and set forth in the table above. The EMF was computed assuming the highest possible EMF values that could exist along the proposed transmission line. Normal daily EMF levels will operate below these maximum load

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conditions. Based on studies from the National Institutes of Health, the magnetic field (measured in milliGauss, or mG) associated with emergency loading at the highest EMF value for this transmission line is lower than those associated with normal household appliances like microwaves, electric shavers and hair dryers. For additional information regarding EMF, the National Institutes of Health has posted information on their website: <http://www.niehs.nih.gov/health/topics/agents/emf/>. Additionally, information on electric and magnetic fields is available on AEP Ohio's website: <https://www.aepohio.com/info/projects/emf/OurPosition.aspx>. The information found on AEP Ohio's website describes the basics of electromagnetic field theory, scientific research activities, and EMF exposures encountered in everyday life. Similar material will be made available for those affected by the construction activities for this Project.

B(9)(c) Project Cost

The estimated capital cost of the project.

The capital cost estimate for the proposed Project is approximately \$20,000,000 with a Class 4 estimate. The cost includes all applicable tangible and capital costs for the portion of the Project in Ohio. Pursuant to the PJM OATT, the costs for this Project will be recovered in the AEP Ohio Transmission Company, Inc.'s FERC formula rate (Attachment H-20 to the PJM OATT) and allocated to the AEP Zone.

B(10) Social and Economic Impacts

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

B(10)(a) Land Use Characteristics

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

The Project is located in Upper Township, Perry Township, and the Village of Coal Grove in Lawrence County, Ohio.

The zoning of parcels within the Project area included agricultural, residential, retail, commercial, and exempt (Village-owned, school-owned, State-owned) parcels. Field observations show the Project area is comprised primarily of early successional deciduous forest habitat, pastures, maintained lawns, old field habitat, and residential and commercial development (see Figure 3 in Appendix E). There is also a recreational sports complex crossed by the existing transmission line. Appendix E also contains photographs and descriptions of specific habitat types and land uses within the Project area. There is one park (Joe Swarts Sports Complex) located within 100 feet of the proposed centerline (see Figure 3 in Appendix A). Additionally, the Company's consultant identified one small family cemetery (Crabtree Cemetery) within 100 feet of the proposed centerline in the eastern portion of the Project area where the transmission line is being rebuilt on the existing centerline. The cemetery is located outside of the existing and proposed ROW and will be avoided during construction of the Project. There are no schools, designated places of worship, wildlife management areas, or nature preserve lands within 100 feet of the Project area and no residences located within the 100-foot ROW.

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Approximately 22 acres of tree clearing within the existing and proposed ROW will be required for the Project. Any necessary tree clearing will take place between October 1 and March 31, to adhere to recommendations from the U.S. Fish and Wildlife Service (“USFWS”) and Ohio Department of Natural Resources (“ODNR”). Additionally, no significant environmental or cultural resources are expected to be impacted as a result of this Project.

B(10)(b) Agricultural Land Information

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

Based on field survey observations by the Company’s consultant, there was no agricultural land in the Project area (see Figure 3 in Appendix E). As verified by the Lawrence County Auditor’s Office on March 8, 2021, there are no parcels in the Project area that are enrolled in the agricultural district land program.

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.

Phase I Archaeological and Phase I History/Architectural surveys were completed by the Company’s consultant in October 2020 and January 2021. No significant archaeological sites were identified within the Project area. Two previously recorded architectural and historical resources were identified within the study area for the Project, one of which is recommended as eligible for listing on the National Register of Historic Places (“NRHP”), but it is not anticipated that the Project will impact either of these resources. Lastly, the Crabtree Cemetery was identified by the Company’s consultant within 100 feet of the proposed centerline and where the transmission line is being rebuilt on the existing centerline. The cemetery is located outside of the existing ROW and will be avoided during construction of the Project. Additionally, this cemetery was not recommended as eligible for listing on the NRHP by the Company’s consultant.

Correspondence from the State Historic Preservation Office (“SHPO”) regarding the Phase I Archaeological survey report was received on April 29, 2021 (see Appendix D). The SHPO stated that with very little documentation and a firm understanding of the Crabtree Cemetery boundaries, it is possible the access road may disturb unmarked burials. The SHPO requested that the Company consider other alternatives to the access road and if an alternative is not possible, they recommended additional investigations to ensure no burials will be disturbed by construction activities in the area. The Company has adjusted the access road plans in this area accordingly to avoid the cemetery. The results of the Phase I History/Architectural surveys are currently being coordinated with the SHPO. A copy of the SHPO correspondence letter regarding the Phase I History/Architectural survey report will be provided once their response is received. No adverse effects on historic properties are anticipated.

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

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

A Notice of Intent (NOI) will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000005, and the Company will implement and maintain best management practices as outlined in the project-specific Storm Water Pollution Prevention Plan to minimize erosion and sediment to project surface water quality during storm events. An Earth Moving Permit will also be obtained from Lawrence County prior to the initiation of construction activities.

Coordination with the SHPO, the USFWS, and the ODNR have been completed or is on-going. Coordination letters can be found in Appendix D.

The Project will not require a Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers (“USACE”) or Pre-Construction Notification to the USACE, as no streams, wetlands, or open waters will be impacted by the Project. The Project will require a Rivers and Harbors Act Section 10 Permit from the USACE for the Ohio River crossing portion of the Project, which will be obtained by the Company prior to initiation of construction activities associated with the Project. Proposed structures 12, 13, 14, 15, and 16, existing structures 12, 13, 14, 15, and 16, as well as associated proposed access roads are located within mapped Federal Emergency Management Agency (“FEMA”) 100-year floodplains (FEMA Map ID Nos. 39087C0351E, 39087C0332D, and 39087C0244E). OPSB-jurisdictional projects are exempt from needing to obtain a floodplain permit (Special Flood Hazard Area Permit) from Lawrence County. However, if applicable, the Company will obtain a floodplain permit from the Village of Coal Grove prior to the initiation of construction activities associated with the Project.

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

B(10)(e) Threatened, Endangered, and Rare Species

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

The USFWS Ohio Ecological Services Field Office list of federally endangered, threatened, and candidate species in Ohio by County (available at https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyList29_Jan2018.pdf) was reviewed by the Company’s consultant to determine the listed threatened and endangered species that currently are known

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to occur, or that have the potential to occur, in Lawrence County. This USFWS publication lists the following threatened and endangered species as occurring in, or having the potential to occur, in Lawrence County: Indiana bat (*Myotis sodalis*; federally endangered), northern long-eared bat (*Myotis septentrionalis*; federally threatened), fanshell (*Cyprogenia stegaria*; federally endangered), pink mucket pearlymussel (*Lampsilis abrupta*; federally endangered), sheepnose (*Plethobasus cyphus*; federally endangered), snuffbox (*Epioblasma triquetra*; federally endangered), and running buffalo clover (*Trifolium stoloniferum*; federally endangered).

As part of the ecological study completed for the Project, a coordination letter was submitted to the USFWS Ohio Ecological Services Field Office seeking technical assistance on the Project for potential impacts to threatened or endangered species. The December 5, 2019 response letter from the USFWS (see Appendix D) stated all projects in the State of Ohio lie within range of the federally endangered Indiana bat and the federally threatened northern long-eared bat. In Ohio, presence of these species is assumed wherever suitable habitat occurs unless a presence/probable absence survey has been performed to document probable absence. No hibernacula for these species were observed within the Project area. However, the Project area does contain potentially suitable summer roosting and foraging habitat for the Indiana bat and northern long-eared bat. Potentially suitable summer roosting habitat observed within the Project area was limited to mixed early successional/second growth deciduous forest habitat. The USFWS response letter stated that, should the Project site contain trees ≥ 3 inches diameter at breast height (“dbh”), the USFWS recommends trees be saved whenever possible. If any caves or abandoned mines may be disturbed, further coordination is requested. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, the USFWS recommends that removal of trees ≥ 3 inches dbh only occur between October 1 and March 31 in order to avoid adverse effects to these species. If implementation of seasonal tree clearing is not possible, the USFWS recommends summer presence/probable absence surveys be conducted between June 1 and August 15. There are no potential bat hibernacula within the Project area and the Company intends to conduct any necessary tree clearing between October 1 and March 31. Therefore, impacts to the northern long eared bat or Indiana bat are not anticipated.

Additionally, the USFWS stated that they do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species due to the project type, size, and location.

Several state-listed threatened species, endangered species, and species of concern are listed by the ODNR (<https://ohiodnr.gov/static/documents/wildlife/state-listed-species/lawrence.pdf>) as occurring in, or potentially occurring in Lawrence County and/or are listed by the ODNR as occurring statewide. These state-listed species are addressed in detail in the Ecological Resources Inventory Report included in Appendix E. An ODNR Ohio Natural Heritage Program data request and environmental review request letter was submitted via email on November 21, 2019.

The ODNR Office of Real Estate response letter dated January 8, 2020 (Appendix D), stated that the Project area is located within a one-mile radius of the following: maypop (*Passiflora incarnata*; state-listed threatened), gray beard-tongue (*Penstemon canescens*; state-listed threatened), blue scorpion-weed (*Phacelia covillei*; state-listed endangered), wartyback (*Cyclonias nodulata*; state-listed endangered), butterfly (*Ellipsaria lineolata*; state-listed endangered), elephant-ear (*Elliptio crassidens crassidens*; state-listed endangered), black sandshell (*Ligumia recta*; state-listed threatened), washboard (*Megaloniais nervosa*; state-listed endangered), threehorn wartyback (*Obliquaria reflexa*; state-listed threatened), Ohio

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pigtoe (*Pleurobema cordatum*; state-listed endangered), ebonyshell (*Reginaia ebenus*; state-listed endangered), channel darter (*Percina copelandi*; state-listed threatened), river darter (*Percina shumardi*; state-listed threatened), green salamander (*Aneides aeneus*; state-listed endangered), and Little Ice Creek Conservation Site, a state-listed high quality natural area. No work on the Project is proposed in perennial streams. Therefore, no impacts to the state-listed threatened and endangered mussel or fish species known to occur within a one-mile radius of the Project area are anticipated. Potentially suitable habitat for the green salamander was identified by the Company's consultant within the Project area (moist crevices in sandstone rock faces). However, no impacts to this type of habitat are anticipated. Therefore, impacts to the green salamander are not anticipated. Potentially suitable habitat for maypop, gray beard-tongue, and blue scorpionweed is also present within the Project area, as described in Table 5 in Appendix E. The Little Ice Creek Conservation Site is located approximately 3,000 feet southeast of the easternmost portion of the Project area (see Figure 1 in Appendix A) and therefore will not be impacted.

Additionally, the ODNR stated that the Project area is within the range of the Indiana bat. If suitable habitat occurs within the Project area, the ODNR recommends trees be conserved. If suitable habitat occurs within the Project area and trees must be cut, the ODNR recommends cutting occur between October 1 and March 31. If no tree removal is proposed, this project is not likely to impact this species. If suitable roost trees must be cut during the summer months, the ODNR recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of Project area or four net nights per 0.5 kilometer for linear projects.

According to the ODNR, the state-listed endangered little brown bat (*Myotis lucifugus*; state-listed endangered), northern long-eared bat (state-listed endangered), and tri-colored bat (*Perimyotis subflavus*; state-listed endangered) occur statewide in Ohio. The Project area contains potentially suitable roosting habitat for these species and the Indiana bat (mixed early successional/second growth deciduous forest), but no potentially suitable hibernacula for these species were observed within the Project area. The Company intends to conduct any required tree clearing between October 1 and March 31. Therefore, no impacts to these species are anticipated.

The ODNR states that the Project is within the range of the following state-listed and federally listed threatened and endangered mussel species: sheepnose, fanshell, pink mucket, snuffbox, ebonyshell, elephant-ear, washboard, monkeyface (*Quadrula metanevra*; state-listed endangered), little spectaclecase (*Villosa lienosa*; state-listed endangered), Ohio pigtoe, threehorn wartyback, and the black sandshell. Furthermore, the ODNR stated that this project must not have an impact on freshwater native mussels at the Project site and this ruling applies to both listed and non-listed mussel species. Since no in-water work is proposed by the Company in a perennial stream, impacts to the above listed mussel species are not anticipated.

The ODNR also states that the Project is within the range of the following state-listed endangered and threatened fish species: the goldeneye (*Hiodon alosoides*; state-listed endangered), shoal chub (*Macrhybopsis hyostoma*; state-listed endangered), shovelnose sturgeon (*Scaphirhynchus platyrhynchus*; state-listed endangered), channel darter, and river darter. The ODNR recommends no in-water work in the Ohio River from March 15 through June 30, and in other perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, the ODNR stated that this project is not likely to impact these or other aquatic species.

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Because no in-water work is proposed by the Company in a perennial stream, impacts to the above listed fish species are not anticipated.

Additionally, the ODNR states that the Project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state-listed endangered species and federal species of concern. However, due to the location of the Project, and/or the type of work proposed, the ODNR stated that this Project is not likely to impact this species.

The Project is also within range of the following state-listed endangered and threatened amphibian species: the green salamander, eastern spadefoot (*Scaphiopus holbrookii*), and the mud salamander (*Pseudotriton montanus*). However, the ODNR stated that due to the location, type of work proposed, and/or the type of habitat present at the Project site and within the vicinity of the Project area, this Project is not likely to impact these species.

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 USFWS response letter indicates that there are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the Project area (Appendix D). Additionally, the ODNR response letter stated that the Little Ice Creek Conservation Site is located within a one mile radius of the Project area, but there are no records of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas occurring within the Project area (Appendix D). As stated and shown on Figure 1 (Appendix A), the Little Ice Creek Conservation site is located approximately 3,000 feet southeast of the easternmost portion of the Project area and therefore will not be impacted by the Project.

An ecological resources inventory report for the Project was completed by the Company's consultant on February 12, 2021 (Appendix E). During the ecological field surveys, three palustrine emergent wetlands totaling approximately 0.19 acre, one palustrine scrub-shrub wetland totaling approximately 0.39 acre, one palustrine forested wetland totaling approximately 0.08 acre, and one mixed palustrine emergent/palustrine scrub-shrub wetland totaling approximately 0.10 acre were identified within the Project area. Four perennial streams totaling approximately 998 linear feet in length, nine intermittent streams totaling approximately 1,216 linear feet in length, and five ephemeral streams totaling approximately 484 linear feet in length were delineated within the Project area. Of the four perennial streams identified within the Project area, three are named U.S. Geological Survey ("USGS") streams (Ohio River, Ice Creek, and Little Ice Creek). See Appendix E for more information regarding these aquatic

LETTER OF NOTIFICATION FOR BELLEFONTE EXTENSION 138 KV LINE REBUILD PROJECT

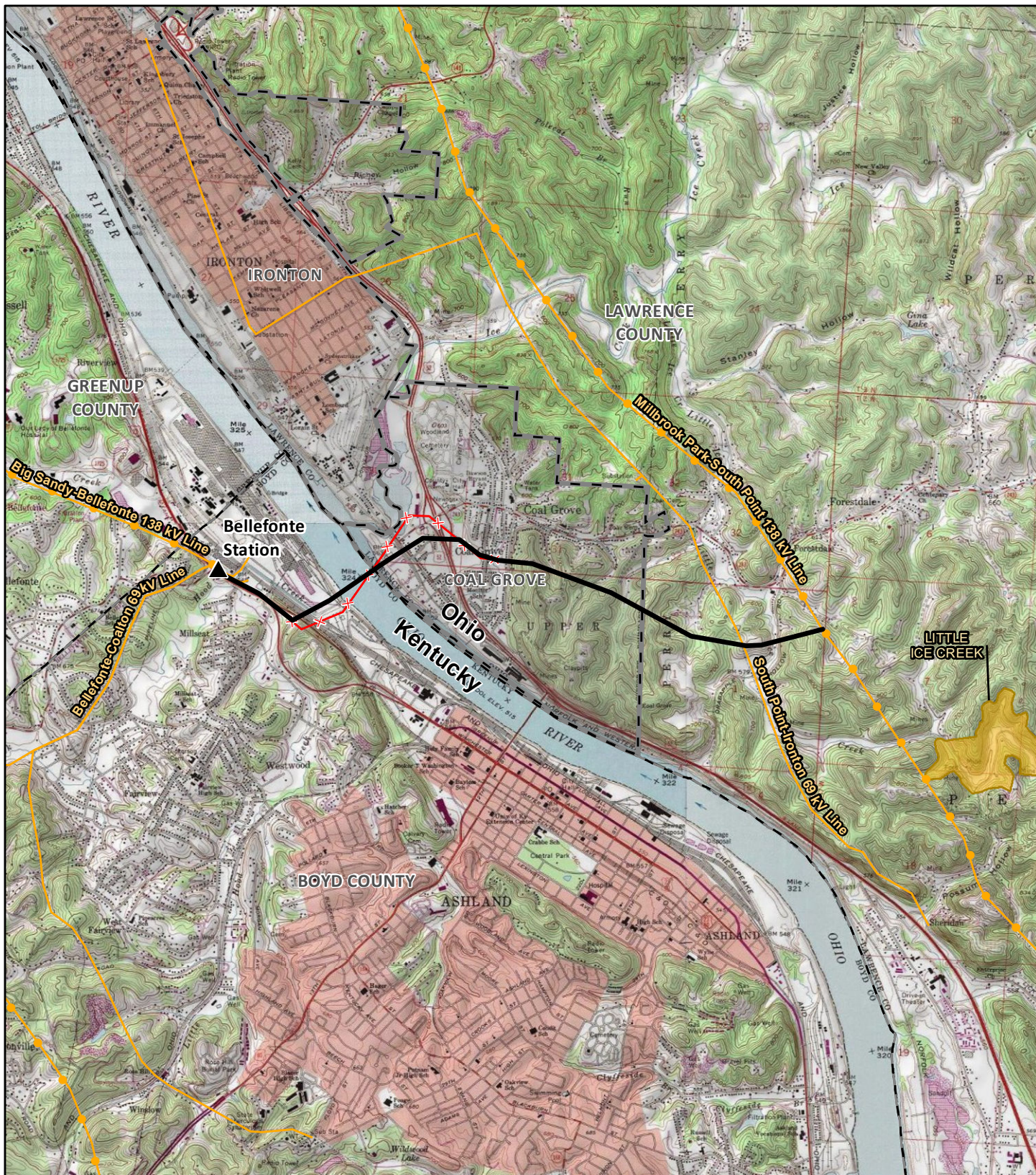
resources. No impacts to the wetlands or streams identified within the Project area are anticipated to be required for the Project.

B(10)(g) Unusual Conditions

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

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

APPENDIX A Project Figures



LEGEND:

- ▲ Existing Substation
- Existing Transmission Line to be Removed
- Proposed Route
- Existing Transmission Line
- Conservation Area
- 69 kV and Lower
- Municipal Boundary
- 138 kV
- 345 kV

Data Sources:
AEP, USGS,
PennWell

Coordinate System
and Datum
NAD 83 State Plane
Ohio South

May 26, 2021

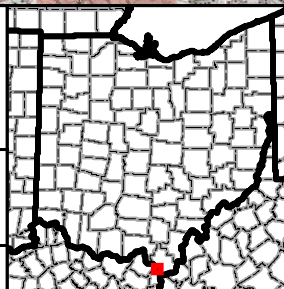
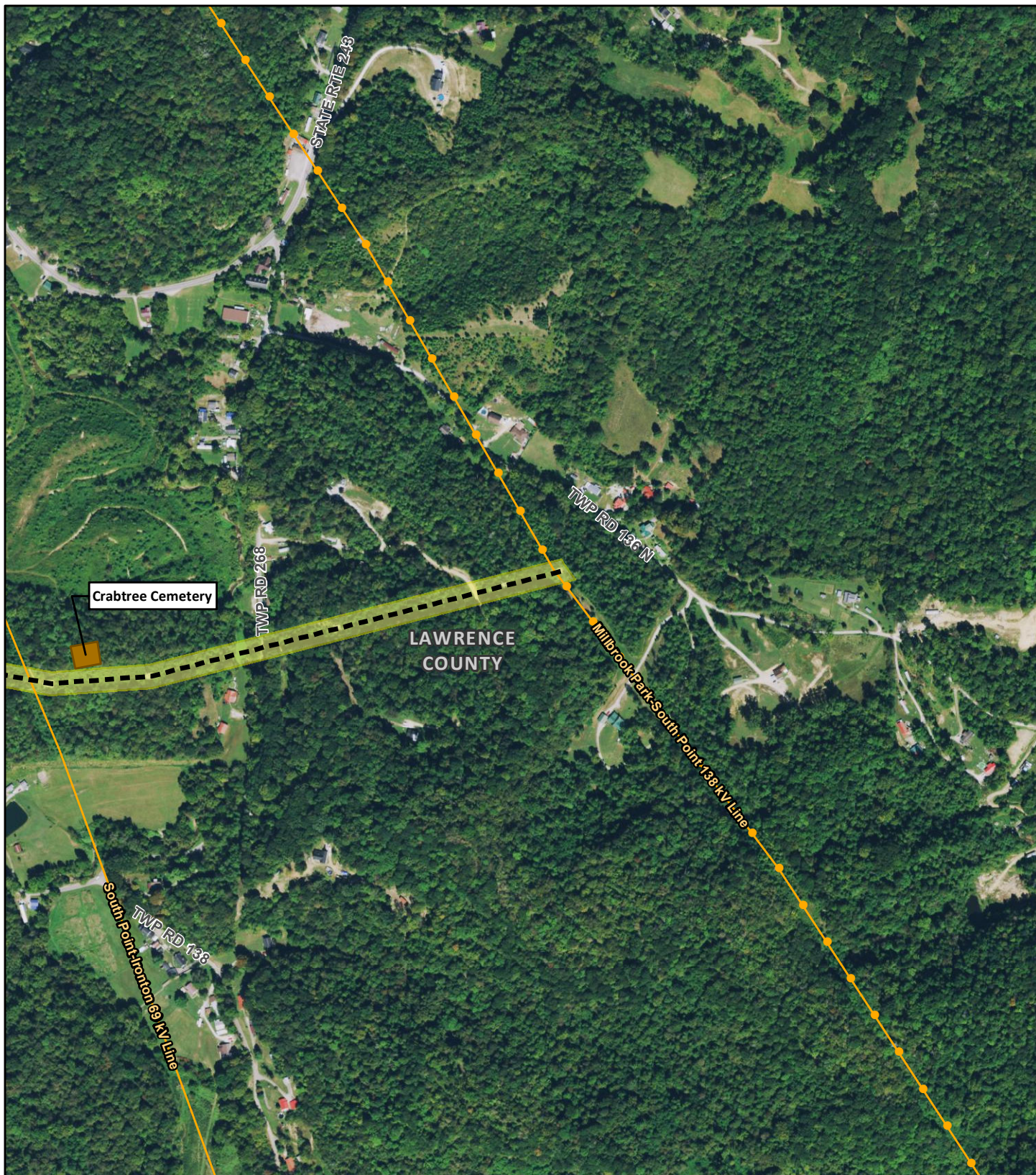


FIGURE 1 TOPOGRAPHIC OVERVIEW MAP

**AEP OHIO
TRANSMISSION
COMPANY**
An AEP Company
BOUNDLESS ENERGY

**Bellefonte Extension
138 kV Line
Rebuild Project**

0 3,000 6,000
Feet



LEGEND:

- | | |
|--|----------------------------|
| Proposed 100' ROW | Existing Transmission Line |
| Crabtree Cemetery | 69 kV and Lower |
| Proposed Route | 138 kV |
| Existing Transmission Line to be Removed | 345 kV |

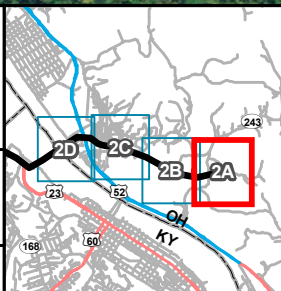
Data Sources or Notes:

AEP, USGS, PennWell, OGRIP, NAIP

Coordinate System and Datum
NAD 83 State Plane Ohio South



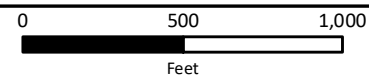
May 26, 2021



**FIGURE 2A
AERIAL MAP**



**Bellefonte Extension
138 kV Line
Rebuild Project**



1:7,200 (At original document size of 8.5x11)



LEGEND:

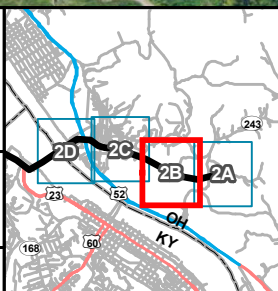
- | | | | |
|--|--|--|----------------------------|
| | Proposed 100' ROW | | Existing Transmission Line |
| | Crabtree Cemetery | | 69 kV and Lower |
| | Proposed Route | | 138 kV |
| | Existing Transmission Line to be Removed | | 345 kV |

Data Sources or Notes:
AEP, USGS, PennWell,
OGRIP, NAIP

Coordinate System
and Datum
NAD 83 State Plane
Ohio South



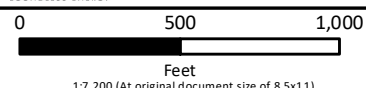
May 26, 2021



**FIGURE 2B
AERIAL MAP**











Bellefonte Extension
138 kV Line
Rebuild Project





LEGEND:

- | | |
|---|--|
|  Proposed 100' ROW |  Existing Transmission Line |
|  Crabtree Cemetery |  69 kV and Lower |
|  Proposed Route |  138 kV |
|  Existing Transmission Line to be Removed |  345 kV |

Data Sources or Notes:

AEP, USGS, PennWell, OGRIP, NAIP

Coordinate System and Datum
NAD 83 State Plane
Ohio South



May 26, 2021

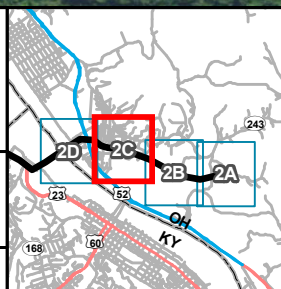
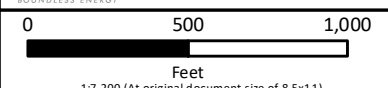


FIGURE 2C AERIAL MAP



Bellefonte Extension
138 kV Line
Rebuild Project





LEGEND:

- | | |
|--|---|
| Proposed 100' ROW | Existing Transmission Line |
| Crabtree Cemetery | 69 kV and Lower |
| Proposed Route | 138 kV |
| xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx Existing Transmission Line to be Removed | 345 kV |

Data Sources or Notes:
AEP, USGS, PennWell,
OGRIP, NAIP

Coordinate System
and Datum
NAD 83 State Plane
Ohio South

May 26, 2021

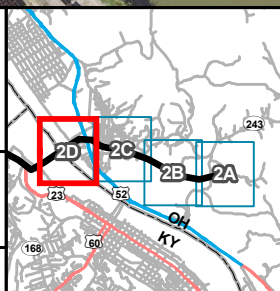
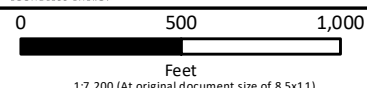
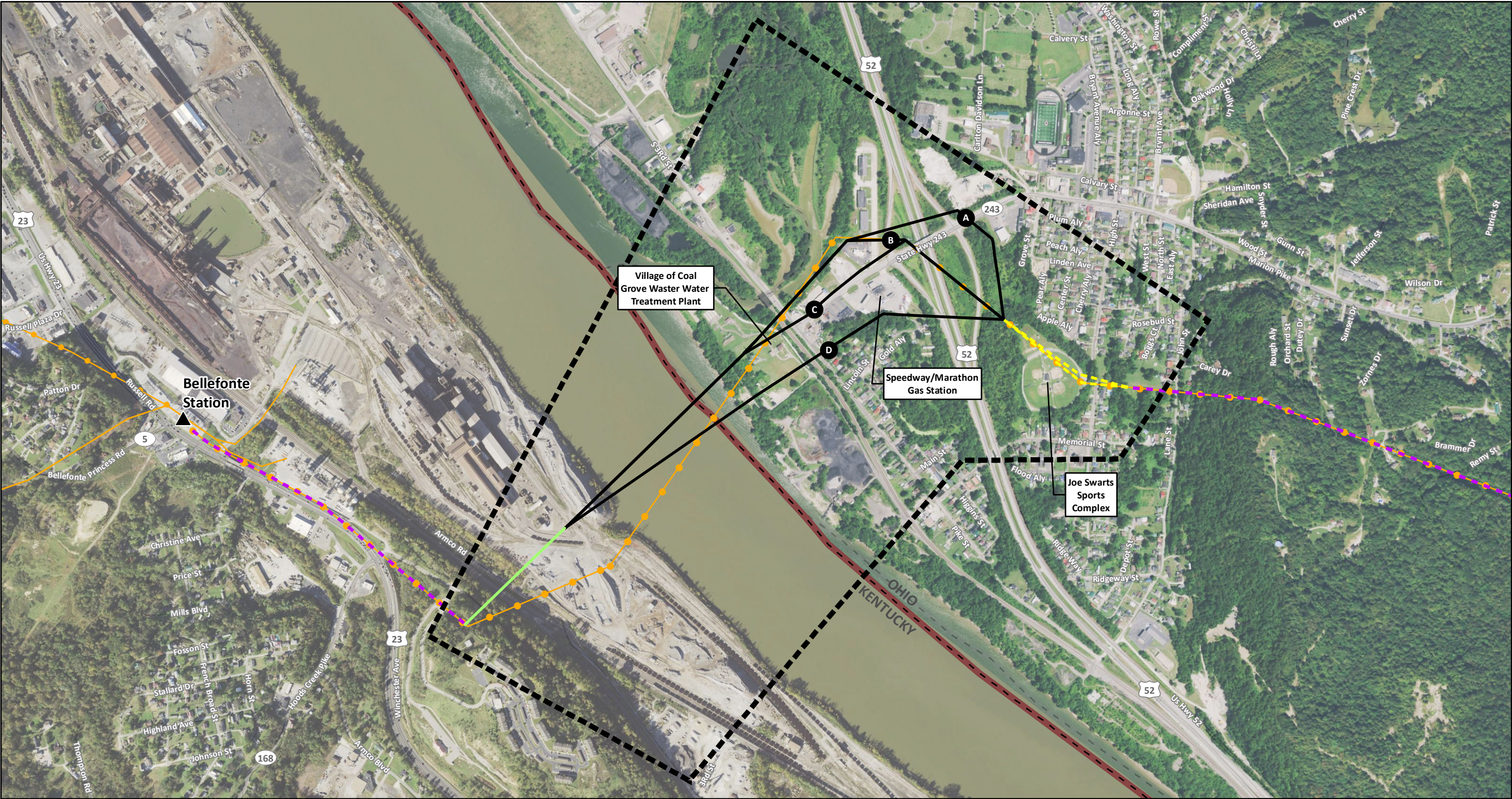


FIGURE 2D AERIAL MAP

**AEP OHIO
TRANSMISSION
COMPANY**
An AEP Company
"BOUNDLESS ENERGY"

Bellefonte Extension
138 kV Line
Rebuild Project





- ▲ Substation
- Alternative Route
- Shared Route Segment
- Minor Route Diversion
- Rebuild on Centerline
- Focus Area
- Existing Transmission Line
- Existing Transmission Line (69 kV or lower)
- Existing Transmission Line (115 kV to 230 kV)

Data Sources: AEP (2020),
Stantec (2020), OGRIP (2018),
NADS, NAIP (2018)

Coordinate System:
State Plane Ohio South
NAD 83

May 20, 2021

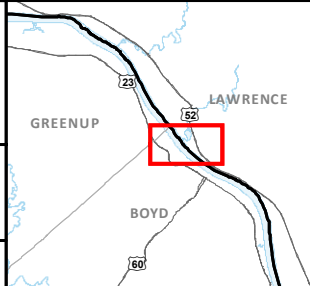


FIGURE 3
ALTERNATIVE ROUTES MAP

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY™

Bellefonte Extension
138 kV Line
Rebuild Project

0 400 800
Feet

APPENDIX B PJM Submittal and Long Term Forecast Report

PUCO Form FE-T9
AEP Ohio Transmission Company
Specifications of Planned Transmission Lines

LINE NAME AND NUMBER:	Millbrook Park - South Point / Millbrook Park - E. Wheelersburg - Bellefonte - N. Proctorville - S. Point (s2272) TP2019104
POINTS OF ORIGIN AND TERMINATION	Millbrook Park, South Point INTERMEDIATE STATION - Dogwood Ridge, East Wheelersburg, Hanging Rock, Bellefonte, North Proctorville, South Point
RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	38 mi / 100 ft / 2 circuit
VOLTAGE: DESIGN / OPERATE	138 kV/ 138 kV
APPLICATION FOR CERTIFICATE:	2021
CONSTRUCTION:	2024-2026
CAPITAL INVESTMENT:	\$140M
PLANNED SUBSTATION:	N/A
SUPPORTING STRUCTURES:	Steel
PARTICIPATION WITH OTHER UTILITIES	N/A
PURPOSE OF THE PLANNED TRANSMISSION LINE	Rebuild of existing 138 kV line
CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Increased risk of equipment failure.
MISCELLANEOUS:	Double circuit accounts for on Millbrook Park - South Point, Millbrook Park - East Wheelersburg, East Wheelersburg - Bellefonte, Bellefonte - North Proctorville, North Proctorville - South Point 138 kV

AEP Transmission Zone M-3 Process Millbrook Park-South Point Rebuild

Need Number: AEP-2019-OH025

Process Stage: Solutions Meeting 05/22/2020

Previously Presented: Needs Meeting 05/20/2019

Supplemental Project Driver: Equipment/Material/Performance/Risk

Specific Assumptions Reference: AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 8), Presentation on pre-1930s lines

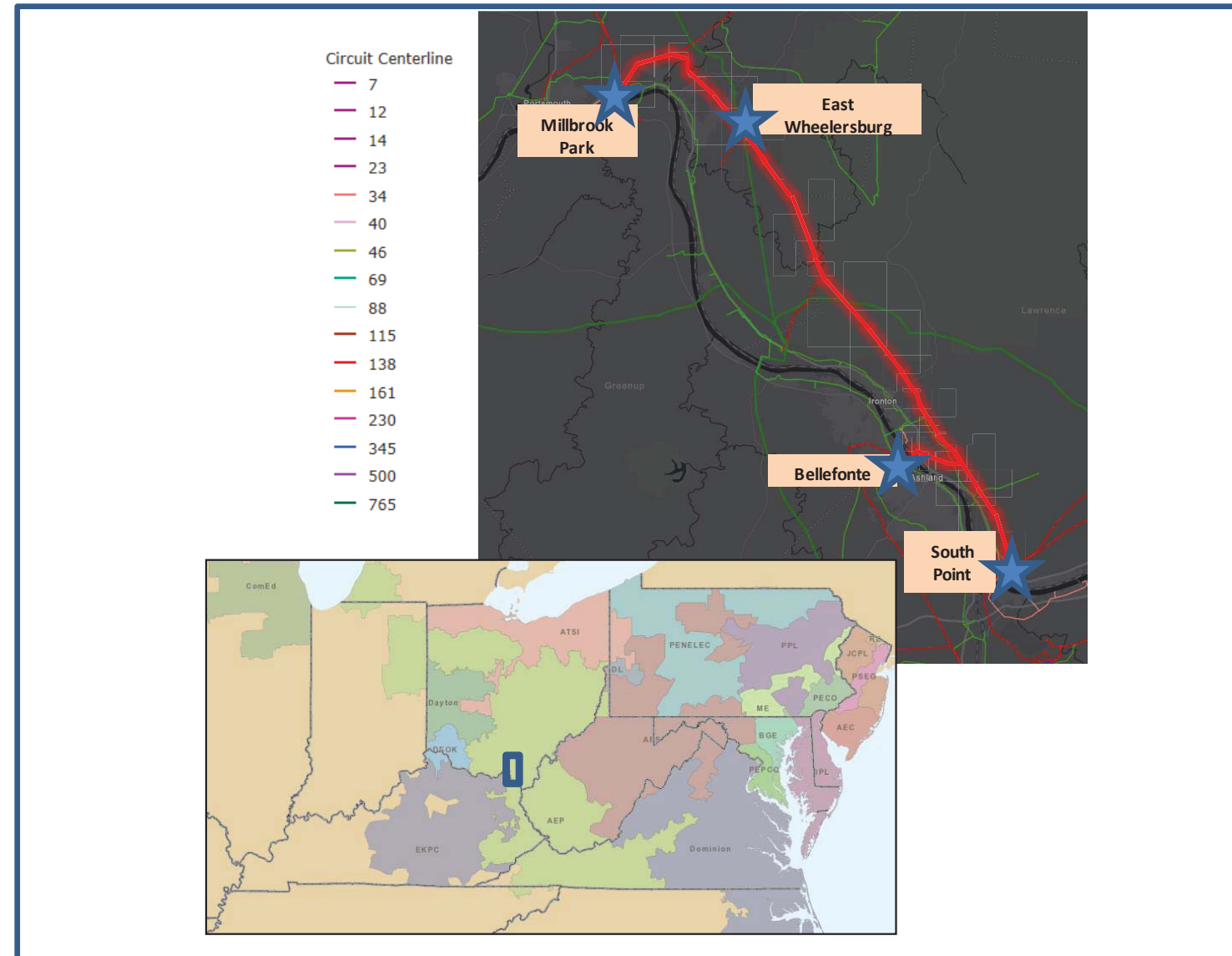
Problem Statement:

- The South Point – Portsmouth 138 kV double circuit is 34.7 miles and the Bellefonte 138 kV Extension is 4 miles in length.
- The conductor is primarily 397.5 ACSR (167 MVA).
- The South Point-Portsmouth line was originally constructed in 1929, with the majority of the structures and conductor being original.
- There are 45 open conditions on the line, including conductor issues, burnt/broken insulators, and loose/broken conductor hardware.
- Insulators of this vintage have shown heightened failure rates.

In general, several issues impact 1920 lattice tower lines:

- The steel conductor attachment plates have significant wear resulting in a loss of 50% of its strength.
- The cross arm hanger tension members are single mode of failure elements that are deteriorated and undersized due to the original design criteria.
- Lattice towers of this vintage do not meet current design requirements for wind and ice loading.
- Foundations are undersized for modern wind loading.
- Towers are beginning to show corrosion.

Model: N/A



Need Number: AEP-2019-OH025

Process Stage: Solutions Meeting 05/22/2020

Proposed Solution:

Rebuild the 35-miles of the South Point- Portsmouth double circuit 138 kV line between Millbrook Park – South Point; with 795 ACSR (257MVA) or equivalent conductor. **Estimated Cost: \$128.0M**

Rebuild the 3.8-miles of the Bellefonte Extension Line from the South Point – Portsmouth line to Bellefonte; with 795 ACSR (257MVA) or equivalent conductor. **Estimated Cost: \$20.1M**

Remote end work at South Point station. **Estimated Cost: \$0.6M**

Total Estimated Transmission Cost: \$148.7M

Alternatives Considered:

Rebuild the Millbrook Park – South Point 138 kV corridor as single circuit by retiring the existing Millbrook Park – South Point 138 kV circuit and rebuilding the Millbrook Park – Bellefonte –North Proctorville 138 kV circuits.

The area that the line traverses consistently receives a significant amount of large load inquiries due to its proximity to the Ohio River and railways. Reducing the corridor to a single circuit would greatly diminish the ability to support new load in the area due to the existing connections to the area’s 69 kV system. Flexibility in how to address the area’s existing 69 kV system in the future would also be greatly limited.

Estimated Alternative Transmission Cost: \$138.7M

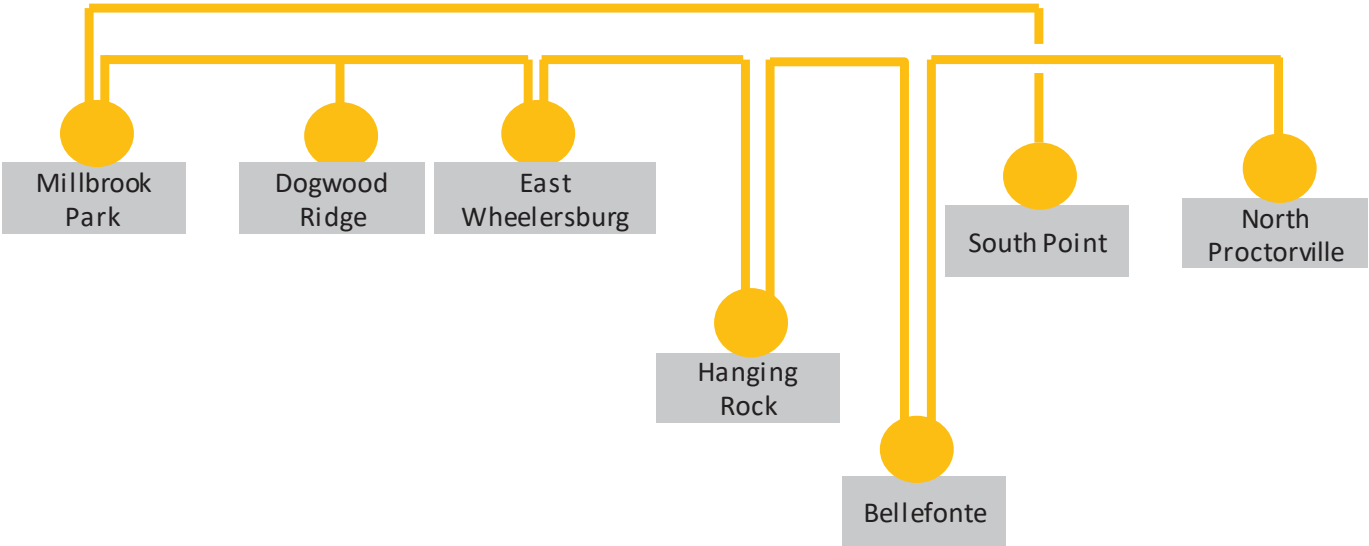
Projected In-Service: 12/15/2025

Project Status: Scoping

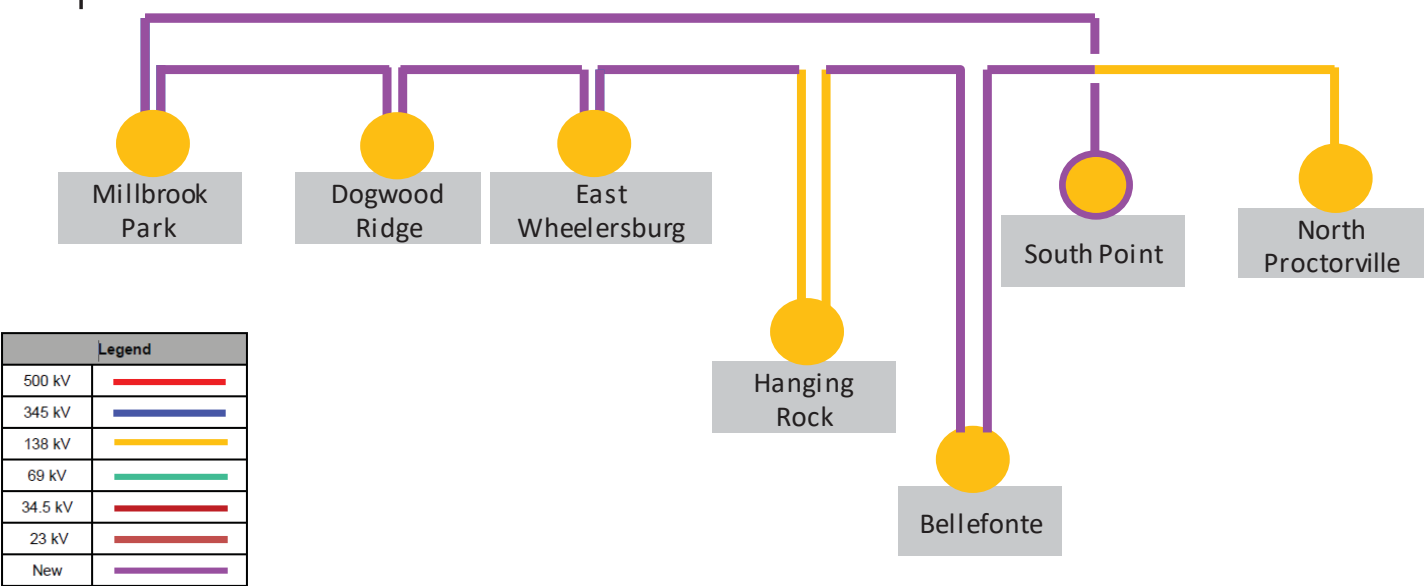
AEP Transmission Zone M-3 Process

Millbrook Park-South Point Rebuild

Existing:



Proposed:



APPENDIX C Property Parcel Number Table

Property Parcel Number	Agreement Type	Easement Agreement Obtained (Yes/No)
Structure 26 Tap Location		
14-021-1200.000	Existing Easement Rights	Yes
14-069-0900.000	Existing Easement Rights	Yes
14-069-0500.002	Existing Easement Rights	Yes
14-069-0500.000	Existing Easement Rights	Yes
14-069-1100.000	Existing Easement Rights	Yes
14-071-1200.000	Existing Easement Rights	Yes
Township Road 268		
14-069-1102.000	Existing Easement Rights	Yes
14-069-1200.000	Existing Easement Rights	Yes
14-069-1400.000	Existing Easement Rights	Yes
14-068-1400.000	Existing Easement Rights	Yes
14-068-1500.000	Existing Easement Rights	Yes
14-068-0400.000	Existing Easement Rights	Yes
14-068-0700.000	Existing Easement Rights	Yes
29-037-0900.000	Existing Easement Rights	Yes
29-037-0600.000	Existing Easement Rights	No
29-037-0700.000	Supplement Existing Easement	No
29-037-0400.000	Supplement Existing Easement	No
29-038-1000.000	Supplement Existing Easement	No
Remy Street		
29-038-0800.000	Supplement Existing Easement	No
29-038-1100.000	Supplement Existing Easement	No
29-038-0901.000	Supplement Existing Easement	No
29-022-1800.000	Supplement Existing Easement	No
Brammer Drive		
29-038-0600.000	Supplement Existing Easement	No
29-013-0101.000	Supplement Existing Easement	No
29-013-0102.000	Supplement Existing Easement	No
29-011-1500.000	Supplement Existing Easement	No
29-029-1100.000	Supplement Existing Easement	No
29-024-0500.000	Supplement Existing Easement	No
Lane Street		
29-029-0900.000	Supplement Existing Easement	No
29-029-0200.000	Supplement Existing Easement	No
29-029-0300.000	Supplement Existing Easement	No
29-029-0400.000	Supplement Existing Easement	No
High Street		
29-002-1800.000	Supplement Existing Easement	No
29-002-0500.000	Supplement Existing Easement	No
29-002-0300.000	Supplement Existing Easement	No
29-035-1300.000	Supplement Existing Easement	No
US Highway 52		
29-035-0900.000	New ROW Needed	No

Property Parcel Number	Agreement Type	Easement Agreement Obtained (Yes/No)
29-035-1400.000	Supplement Existing Easement	No
29-035-1200.000	New ROW Needed	No
29-054-1000.000	New ROW Needed	No
29-054-1200.000	New ROW Needed	No
29-054-1400.000	New ROW Needed	No
29-054-0900.000	New ROW Needed	No
Stanley Street		
29-054-1100.000	New ROW Needed	No
29-054-1300.000	New ROW Needed	No
29-035-1500.000	New ROW Needed	No
29-054-1500.000	New ROW Needed	No
29-048-0300.000	New ROW Needed	No
29-056-0100.000	New ROW Needed	No
29-048-0100.001	New ROW Needed	No
29-047-1801.001	New ROW Needed	No
29-047-1700.000	New ROW Needed	No
29-050-0600.000	New ROW Needed	No
29-048-0400.000	New ROW Needed	No
29-036-0400.000	New ROW Needed	No
29-051-1800.000	New ROW Needed	No
Pike Street		
29-049-1800.000	Supplement Existing Easement	No

APPENDIX D Agency Correspondence



Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate

John Kessler, Chief

2045 Morse Road – Bldg. E-2

Columbus, OH 43229

Phone: (614) 265-6621

Fax: (614) 267-4764

January 8, 2020

Dan Godec
Stantec
1500 Lake Shore Drive Suite 100
Columbus OH 43204-3800

Re: 19-1008; Bellefonte Extension 138 kV Line Rebuild Project

Project: The Project involves rebuilding approximately 3.6 miles of existing 138 kV electric transmission line in Ohio and approximately 1.4 miles of existing 138 kV electric transmission line in Kentucky.

Location: The proposed project is located in Perry Township, Lawrence 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 records at or within a one-mile radius of the project area:

Maypop (*Passiflora incarnata*), T
Gray beard-tongue (*Penstemon canescens*), T
Blue scorpion-weed (*Phacelia covillei*), E
Wartyback (*Cyclonaias nodulata*), E
Butterfly (*Ellipsaria lineolata*), E
Elephant-ear (*Elliptio crassidens*), E
Black sandshell (*Ligumia recta*), T
Washboard (*Megaloniais nervosa*), E
Threehorn wartyback (*Obliquaria reflexa*), T
Ohio pigtoe (*Pleurobema cordatum*), E
Ebonyshell (*Reginaia ebenus*), E
Channel darter (*Percina copelandi*), T
River darter (*Percina shumardi*), T
Green salamander (*Aneides aeneus*), E
Little Ice Creek Conservation Site

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

A Conservation Site is an area deemed by the Natural Heritage Database to be a high-quality natural area not currently under formal protection. It may, for example, harbor one or more rare species, be an outstanding example of a plant community or have geologically significant features, etc. These sites may be in private ownership and our listing of them does not imply permission for access.

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

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

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

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

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

The project is within the range of the sheepnose (*Plethobasus cyphus*), a state endangered and federally endangered mussel, the fanshell (*Cyprogenia stegaria*), a state endangered and federally endangered mussel, the pink mucket (*Lampsilis orbiculata*), a state endangered and federally endangered mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federally

endangered mussel, the ebonyshell (*Fusconaia ebenus*), a state endangered mussel, the elephant-ear (*Elliptio crassidens*), a state endangered mussel, the washboard (*Megalonaias nervosa*), a state endangered mussel, the monkeyface (*Quadrula metanevra*), a state endangered mussel, the little spectaclecase (*Villosa lienosa*), a state endangered mussel, the Ohio pigtoe (*Pleurobema cordatum*), a state endangered mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, and the black sandshell (*Ligumia recta*), a state threatened mussel. This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2018), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2018) can be found at: <http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf>

The project is within the range of the goldeye (*Hiodon alosoides*), a state endangered fish, the shoal chub (*Macrhybopsis hyostoma*), a state endangered fish, the shovelnose sturgeon (*Scaphirhynchus platyrhynchus*), a state endangered fish, the channel darter (*Percina copelandi*), a state threatened fish, and the river darter (*Percina shumardi*), a state threatened fish. The DOW recommends no in-water work in the Ohio River from March 15 through June 30, and in other perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species, utilizing dry slopes and rocky outcrops. In addition to using wooded areas, the timber rattlesnake utilizes sunlit gaps in the canopy for basking and deep rock crevices for overwintering. Due to the location, this project is not likely to impact this species.

The project is within the range of the green salamander (*Aneides aeneus*), a state endangered amphibian. This species inhabits the deep moist cracks of rock cliffs. Due to the location, and the type of work proposed, this project is not likely to impact this species.

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

The project is within the range of the mud salamander (*Pseudotriton montanus*), a state threatened species. Due to the location, and the type of work proposed, this project is not likely to impact this species.

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

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

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

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

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

Mike Pettegrew
Environmental Services Administrator (Acting)

Godec, Daniel

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Thursday, December 05, 2019 8:14 AM
To: Godec, Daniel
Cc: nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject: Bellefonte Extension 138 kV Line Rebuild Project, Lawrence Co.



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



TAILS# 03E15000-2020-TA-0292

Dear Mr. Godec,

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

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

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

Should the proposed site contain trees ≥ 3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, we recommend that removal of any trees > 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule

(see <http://www.fws.gov/midwest/endangered/mammals/nleb/index.html>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

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

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

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

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

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

Sincerely,



Patrice M. Ashfield
Field Office Supervisor

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



In reply, refer to
2021-LAW-51026

April 29, 2021

Lee Arco
GAI Consultants, Inc.
500 Lee Street, Suite 700
Charleston, WV 25301
l.arco@gaiconsultants.com

RE: Bellefonte Extension 138kV Line Rebuild Project, Perry Township, Lawrence County, Ohio

Dear Mr. Arco:

This letter is in response to the correspondence received on March 31, 2021 regarding the proposed Bellefonte Extension 138kV Line Rebuild Project, Perry Township, Lawrence County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The following comments pertain to the *Phase I Cultural Resources Investigation, Bellefonte Extension 138 kV Line Rebuild Project, Lawrence County, Ohio* by Lee J. Arco (GAI Consultants, Inc. 2021).

A literature review, visual inspection and shovel test unit excavation was completed as part of the investigations. No previously identified archaeological resources are located within in the project area and no new archaeological sites were identified during survey. Crabtree Cemetery (OGSID 6502, OHI#LAW0139112) was identified during survey. Crabtree Cemetery was not identified on SHPO mapping because our office did not have good locational information. Our office will add Crabtree Cemetery to our mapping under the OGS Cemetery layer. Our office agrees the proposed location of the access road which runs to the west and south of the cemetery is a concern. With very little documentation and a firm understanding of the cemetery boundaries, it is possible the access road may disturb unmarked burials. Our office requests AEP consider other alternatives to the access road. If an alternative is not possible, our office recommends proposing additional investigations to ensure no burials will be disturbed by construction activities in the area.

The report states that “a complete review of the historic and architectural resources in the project vicinity was completed concurrently with the Phase I archaeological studies. Results of that study are presented under separate cover.” Please provide the history/architecture survey to our office for review.

Our office looks forward to additional coordination regarding Crabtree Cemetery (OGSID 6502, OHI#LAW0139112) and the history/architecture survey. If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorricks@ohiohistory.org or Joy Williams at jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Krista Horrocks, Project Reviews Manager
Resource Protection and Review

RPR Serial No: 1087995

APPENDIX E Ecological Resources Inventory Report



**Bellefonte Extension 138 kV Line
Rebuild Project, Lawrence
County, Ohio**

**Ecological Resources Inventory
Report**

Prepared for:

AEP Ohio Transmission Company, Inc.
8600 Smith's Mill Road
New Albany, OH 43054


Prepared by:

Stantec Consulting Services, Inc.
11687 Lebanon Road
Cincinnati, OH 45241

May 19, 2021

Sign-off Sheet

This document entitled Ecological Resources Inventory Report, Bellefonte Extension 138 kV Line Rebuild Project, Lawrence County, Ohio 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)

Aaron Kwolek

Reviewed by 
(signature)

Dan Godec

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Introduction
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1.0 INTRODUCTION

AEP Ohio Transmission Company, Inc. (AEP) is proposing to rebuild approximately 2.8 miles of the existing Bellefonte Extension 138 kV double circuit electric transmission line in Lawrence County, Ohio (Figure 1, Appendix A). The Project area includes the existing right-of-way, a 200-foot survey corridor for a proposed reroute of a portion of the transmission line, and the associated access roads needed to complete construction activities. 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 October 19 to 21, 2020, December 17 and 18, 2020, and January 21 and 22, 2021. 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.

Methods
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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) maps, 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) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE 2012). 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) and determined as potential Waters of the U.S. (WOTUS) per "The Navigable Waters Protection Rule" published in the Federal Register/Vol. 85, No. 77 (USACE and USEPA 2020). Functional assessment of streams within the Project area was based on completion of the Ohio Environmental Protection Agency's (OEPA) Headwater Habitat Evaluation Index (HHEI; OEPA 2018) and/or Qualitative Habitat Evaluation Index (QHEI; OEPA 2006). The centerline 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 within the Project area, and assessed the potential for these habitats to be used by federally listed or state-listed species that have the potential to occur within Lawrence County.

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3.0 RESULTS

3.1 TERRESTRIAL HABITAT

Stantec completed field surveys within the Project area on October 19 to 21, 2020, December 17 and 18, 2020, and January 21 and 22, 2021, for threatened and endangered species or their habitats. Figure 3 (Appendix A) shows the habitats and locations of any identified rare, threatened, or endangered species habitat observed within the Project area during 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 Figures 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 Found within the Bellefonte Extension 138 kV Line Rebuild Project Area, Lawrence 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
Old Field	Moderate to Extreme Disturbance/Ruderal Community dominated by non-native herbaceous and woody species, opportunistic invaders, and/or native highly tolerant taxa. Common plant species included Allegheny blackberry (<i>Rubus allegheniensis</i>), multiflora rose (<i>Rosa multiflora</i>), Callery pear (<i>Pyrus calleryana</i>), Johnsongrass (<i>Sorghum halapense</i>), smooth sumac (<i>Rhus glabra</i>), and Queen Anne's lace (<i>Daucus carota</i>).	No	3.19
Early Successional Deciduous Forest	Moderate Disturbance/Natural Community (dominated by native woody and herbaceous species and opportunistic invaders). Common plant species included tuliptree (<i>Liriodendron tulipifera</i>), sweetgum (<i>Liquidambar styraciflua</i>), Chinese privet (<i>Ligustrum sinense</i>), spicebush (<i>Lindera benzoin</i>), Allegheny blackberry, sugar maple (<i>Acer saccharinum</i>), zigzag goldenrod (<i>Solidago flexicaulis</i>), Canada wildrye (<i>Elymus canadensis</i>), and eastern bottlebrush grass (<i>Elymus hystrix</i>).	No	29.32
Mixed Early Successional/Second	Moderate Disturbance/Natural Community (dominated by native woody species, and opportunistic invaders). Common plant species included black walnut (<i>Juglans nigra</i>), hackberry	No	1.42

ECOLOGICAL RESOURCES INVENTORY REPORT, BELLEFONTE EXTENSION 138 KV LINE REBUILD PROJECT,
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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
Growth Deciduous Forest	(<i>Celtis occidentalis</i>), redbud (<i>Cercis canadensis</i>), sugar maple, black cherry (<i>Prunus serotina</i>), spicebush, poison ivy (<i>Toxicodendron radicans</i>), Allegheny blackberry, multiflora rose, giant ragweed (<i>Ambrosia trifida</i>), winter creeper (<i>Euonymus fortunei</i>), and wineberry (<i>Rubus phoenicolasius</i>).		
Pasture	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders, planted non-native species, and/or native highly tolerant taxa). Common plant species included tall fescue (<i>Schedonorus arundinaceus</i>), Kentucky bluegrass (<i>Poa pratensis</i>), red clover (<i>Trifolium pratense</i>), common dandelion (<i>Taraxacum officinale</i>), and white clover (<i>Trifolium repens</i>).	No	3.08
Maintained Lawn	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders, planted non-native species, and/or native highly tolerant taxa). Common plant species included tall fescue (<i>Schedonorus arundinaceus</i>), narrowleaf plantain (<i>Plantago lanceolata</i>), common dandelion, and white clover.	No	10.11
Industrial Land	Extreme Disturbance/Ruderal Community (little to no vegetation is present in these habitats).	No	2.29
Existing Paved Roadway	Extreme Disturbance/Ruderal Community (little to no vegetation is present in these habitats).	No	3.67
Existing Gravel Roadway	Extreme Disturbance/Ruderal Community (little to no vegetation is present in these habitats).	No	3.15
Existing ATV Trail	Extreme Disturbance/Ruderal Community (little to no vegetation is present in these habitats).	No	3.95
Existing Railroad	Extreme Disturbance/Ruderal Community (little to no vegetation is present in these habitats).	No	0.42
Palustrine Emergent Wetland	Moderate Disturbance/Natural Community (dominated by native herbaceous species). Common plant species included purple loosestrife (<i>Lythrum salicaria</i>), common rush (<i>Juncus effusus</i>), purpleleaf willowherb (<i>Epilobium coloratum</i>), green bulrush (<i>Scirpus</i>	No	0.26

**ECOLOGICAL RESOURCES INVENTORY REPORT, BELLEFONTE EXTENSION 138 KV LINE REBUILD PROJECT,
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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
	<i>atrovirens</i>), and spotted joe-pye weed (<i>Eutrochium maculatum</i>).		
Palustrine Scrub-Shrub Wetland	Moderate Disturbance/Natural Community (dominated by native shrubs and trees). Common plant species included American elm (<i>Ulmus americana</i>), silver maple (<i>Acer saccharinum</i>), sycamore (<i>Platanus occidentalis</i>), Allegheny blackberry, boxelder (<i>Acer negundo</i>), buttonbush (<i>Cephalanthus occidentalis</i>), sandbar willow (<i>Salix interior</i>), and reed canarygrass (<i>Phalaris arundinacea</i>).	No	0.42
Palustrine Forested Wetland	Moderate Disturbance/Natural Community (dominated by native woody and herbaceous species). Dominant plant species included silver maple (<i>Acer saccharinum</i>), green ash (<i>Fraxinus pennsylvanica</i>), pin oak (<i>Quercus palustris</i>), Canadian wood nettle (<i>Laportea canadensis</i>), creeping Jenny (<i>Lysimachia nummularia</i>), trumpet creeper (<i>Campsis radicans</i>), and devil's beggartick (<i>Bidens frondosa</i>).	No	0.08
TOTAL			61.36

3.2 WETLANDS

Stantec completed field surveys within the Project area on October 19 to 21, 2020, December 17 and 18, 2020 and January 21 and 22, 2021, for wetlands. As a result of the field surveys, Stantec identified three palustrine emergent (PEM) wetlands, one palustrine scrub-shrub (PSS) wetland, one palustrine forested (PFO) wetland, and one mixed PEM/PSS wetland within the Project area. Figure 2 (Appendix A) shows the locations of the wetlands identified by Stantec within the Project area. Representative photographs of the wetlands identified within the Project area are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A). Completed wetland determination data forms and ORAM data forms are included in Appendix D. Information regarding the Cowardin classification and ORAM categories of wetlands identified within the Project area is provided in Table 2. Four NWI-mapped wetlands are located within the Project area. The disposition of these NWI-mapped wetlands is provided in Table 3.

ECOLOGICAL RESOURCES INVENTORY REPORT, BELLEFONTE EXTENSION 138 KV LINE REBUILD PROJECT, LAWRENCE COUNTY, OHIO

Results
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Table 2. Summary of Wetland Resources Found within the Bellefonte Extension 138 kV Line Rebuild Project Area, Lawrence County, Ohio

Wetland ID	Location		Isolated?	Habitat Type ¹	Delineated Area (acre)	ORAM		Nearest Structure Number (Existing/Proposed)	Existing Structure Number in Wetland	Proposed Structure Number in Wetland	Structure Installation Method	Proposed Impacts	
	Latitude	Longitude				Score	Category					Temporary Matting Area (acre)	Permanent Impact Area (acre)
Wetland 1	38.499014	-82.648285	No	PSS ³	0.39	30	1 or 2 Gray Zone	13/14	None	N/A	N/A	TBD ⁵	TBD ⁵
Wetland 2	38.499486	-82.649087	No	PSS ³	0.03	11	1	13/14	None	N/A	N/A	TBD ⁵	TBD ⁵
	38.499849	-82.649669	No	PEM ²	0.07			13/14	None	N/A	N/A	TBD ⁵	TBD ⁵
Wetland 3	38.498557	-82.647889	No	PFO ⁴	0.08	45	2	13/14	None	N/A	N/A	TBD ⁵	TBD ⁵
Wetland 4	38.490939	-82.623648	No	PEM ²	0.01	22	1	6/6	None	N/A	N/A	TBD ⁵	TBD ⁵
Wetland 5	38.49888	-82.650818	No	PEM ²	0.02	9	1	None/15	None	N/A	N/A	TBD ⁵	TBD ⁵
Wetland 6	38.497509	-82.654277	No	PEM ²	0.16	13	1	None/16	None	N/A	N/A	TBD ⁵	TBD ⁵
TOTAL					0.76							0.000	0.000

¹Wetland classification is based on Cowardin et al. (1979).

²PEM = Palustrine Emergent Wetland

³PSS= Palustrine Scrub-Shrub Wetland

⁴PFO=Palustrine Forested Wetland

⁵TBD – To be determined. Impact information and/or structure installation method is unknown at this time.

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Results
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Table 3. Summary of NWI Disposition within the Bellefonte Extension 138 kV Line Rebuild Project Area, Lawrence County, Ohio

NWI Code	NWI Description	Figure 2 Page Number	Related Field Inventoried Resource(s)	Comments
PUBGx	Palustrine unconsolidated bottom, intermittently exposed, excavated	7	SP10	Wetland determination sample point (SP10) was evaluated within the mapped NWI feature. This sample point documented upland maintained lawn habitat with disturbed soils. The wetland determination data form for SP10 is available in Appendix D and representative photographs are available in Appendix C.
PFO1A	Palustrine Forested, broad-leaved deciduous, temporarily flooded	9	Wetland 1, Wetland 3	Wetland 1 (PSS) and Wetland 3 (PFO) were delineated within the mapped NWI feature. ORAM data forms and associated wetland determination data forms for Wetland 1 and Wetland 3 are available in Appendix D. Representative photographs are available in Appendix C.
R2UBH	Riverine, lower perennial, unconsolidated bottom, permanently flooded	10	Stream 2 (Ice Creek)	Stream 2 (Ice Creek) was delineated and evaluated within the Project area. The QHEI data form for Stream 2 is available in Appendix D and representative photographs are available in Appendix C.
R2UBH	Riverine, lower perennial, unconsolidated bottom, permanently flooded	10	Stream 1 (Ohio River)	Stream 1 (Ohio River) was delineated and evaluated within the Project area. The QHEI data form for Stream 1 is available in Appendix D and representative photographs are available in Appendix C.

Results
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3.3 STREAMS

Stantec completed field surveys within the Project area on October 19 to 21, 2020, December 17 and 18, 2020 and January 21 and 22, 2021, for waterways (streams). As a result of the field surveys, Stantec identified four perennial streams, nine intermittent streams, and five ephemeral streams within the Project area. Figure 2 (Appendix A) shows the locations of streams identified by Stantec within the Project area. Representative photographs of the streams are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A). Completed QHEI and HHEI data forms for the identified streams are included in Appendix D. Information regarding the identified streams is provided in Table 4.

ECOLOGICAL RESOURCES INVENTORY REPORT, BELLEFONTE EXTENSION 138 KV LINE REBUILD PROJECT, LAWRENCE COUNTY, OHIO

Results
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Table 4. Summary of Stream Resources Found within the Bellefonte Extension 138 kV Line Rebuild Project Area, Lawrence County, Ohio

Stream ID	Location		Stream Type	Stream Name ¹	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score ^{2,3}	Category/Rating/OAC Use Designation ^{2,3,4}			Fill Type	Length (LF)
Stream 1	38.497107	-82.656103	Perennial	Ohio River	295	1,400	1,300	Chapter 3745-1	N/A	Warmwater Habitat	Eligible	No	None	0
Stream 2	38.499785	-82.653666	Perennial	Ice Creek	634	135	115	Chapter 3745-1	N/A	Warmwater Habitat	Eligible	No	None	0
Stream 3	38.499135	-82.648492	Intermittent	UNT to Ice Creek	265	8.0	5.0	HHEI	60	Modified Small Drainage Warmwater Stream	Eligible	No	None	0
Stream 4	38.497175	-82.644593	Perennial	UNT to Ice Creek	253	11.0	8.0	HHEI	71	Modified Small Drainage Warmwater Stream	Eligible	No	None	0
Stream 5	38.495193	-82.635004	Intermittent	UNT to Ice Creek	198	8.0	4.0	HHEI	66	Spring Water	Eligible	No	None	0
Stream 6	38.495181	-82.634868	Intermittent	UNT to Ice Creek	34	8.0	4.0	HHEI	48	Small Drainage Warmwater Stream	Eligible	No	None	0
Stream 7	38.496204	-82.638342	Ephemeral	UNT to Ice Creek	48	3.0	1.25	HHEI	30	Modified Ephemeral Stream	Eligible	No	None	0
Stream 8	38.496577	-82.639142	Ephemeral	UNT to Ice Creek	118	2.75	1.0	HHEI	12	Ephemeral Stream	Eligible	No	None	0
Stream 9	38.491309	-82.613644	Ephemeral	UNT to Little Ice Creek	109	2.75	1.0	HHEI	18	Ephemeral Stream	Eligible	No	None	0
Stream 10	38.490779	-82.615643	Perennial	Little Ice Creek	117	50	40	Chapter 3745-1	N/A	Warmwater Habitat	Eligible	No	None	0

Results
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¹UNT = Unnamed Tributary
²Based on the designated use evaluation presented in the Field Methods for Evaluating Primary Headwater Habitat Streams in Ohio, Version 4.0 (OEPA 2018).
³Based on the designated use evaluation presented in the Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (OEPA 2006).
⁴Based on the Ohio Administrative Code (OAC) 3745-1-16.

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3.4 OPEN WATERS

No open waters (ponds or lakes) were delineated within the Project area during the field surveys completed on October 19 to 21, 2020, December 17 and 18, 2020, and January 21 and 22, 2021.

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3.5 RARE, THREATENED, OR ENDANGERED SPECIES HABITAT

Table 5. Summary of Potential Federally Listed and Ohio State-Listed Species within the Bellefonte Extension 138 kV Line Rebuild Project Area, Lawrence County, Ohio

Common Name/Scientific Name	State Listed Status ^{1,2}	Federally Listed Status ^{1,3}	Typical Habitat	Habitat Observed	Agency Comment (Appendix B)	Potential Impacts and Avoidance Dates
Reptiles						
Timber Rattlesnake/ <i>Crotalus horridus horridus</i>	E	SC	In the central Midwest, optimum habitat is a high, dry ridge with oak-hickory forest interspersed with open areas. Hibernacula are typically located in a rocky area where underground crevices provide retreats for overwintering, such as a fissure in a ledge, a crevice between ledge and ground, and fallen rock associated or unassociated with cliffs (NatureServe 2021).	Potentially suitable habitat was observed within the Project area within the early successional deciduous forest habitats east of Structure 11 (Figure 3, Appendix A).	ODNR - The Project is within the range of the timber rattlesnake. The timber rattlesnake is a woodland species, utilizing dry slopes and rocky outcrops. In addition to using wooded areas, the timber rattlesnake utilizes sunlit gaps in the canopy for basking and deep rock crevices for overwintering. Due to the location, 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 this species.	Potentially suitable habitat was observed within the Project area. However, due to the location of the Project and the mobility of the species, impacts to this species are not anticipated.
Fishes						
Goldeye/ <i>Hiodon alosoides</i>	E	N/A	This species is found in large rivers and are tolerant of turbid waters with clay silt substrates. This species does not inhabit streams with industrial chemical pollutants. They can often be found below dams where current is swift (ODNR 2020).	Suitable habitat was observed within the Project area within the Ohio River (Figure 2, Appendix A).	ODNR – The Project area is within the range of the goldeye. The ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species. USFWS – No comments received.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Shoal Chub/ <i>Macrhybopsis hyostoma</i>	E	N/A	Shoal chub are found in large rivers with continuously murky waters over fine gravel or sandy substrates. They spend most of their time near the bottom and remain in water greater than four feet deep during the day. In Ohio, this species was historically found in the Ohio River and the lower portion of some of its larger tributaries, particularly the Muskingum River. However, it has not been found in Ohio waters since the early 1980's (ODNR 2020).	Suitable habitat was observed within the Project area within the Ohio River (Figure 2, Appendix A).	ODNR – The Project area is within the range of the shoal chub. The ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species. USFWS – No comments received.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
River Darter/ <i>Percina shumardi</i>	T	N/A	Large rivers and lower portions of tributaries; deep chutes and riffles where current is swift and bottom is coarse gravel or rock (NatureServe 2021).	Potentially suitable habitat was observed within the Project area within the Ohio River and Ice Creek (Figure 2, Appendix A).	ODNR – The Project area is within the range of the river darter. The Natural Heritage Database has records of the river darter within one mile of the Project area. The ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species. USFWS – No comments received.	No suitable habitat was observed within the Project area and no in-water work is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.

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Channel Darter/ <i>Persina copelandi</i>	T	N/A	Channel darters are found in areas of large, coarse sand or fine gravel bars in large rivers, or along the shore of Lake Erie. It is likely the Lake Erie population no longer exists. They are still found in the Ohio River and the lower portion of the Scioto, Muskingum, and Hocking Rivers. There may also be a small remnant population in the lower Maumee and Sandusky Rivers in the Lake Erie drainage (ODNR 2020).	Suitable habitat was observed within the Project area within the Ohio River (Figure 2, Appendix A).	ODNR – The Project area is within the range of the channel darter. The Natural Heritage Database has records of the channel darter within one mile of the Project area. The ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species. USFWS – No comments received.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore impacts to this species are not anticipated and avoidance dates are not applicable.
Shovelnose Sturgeon/ <i>Scaphirhynchus platyrhynchus</i>	E	N/A	This species prefers the deep channels and embayments of large, turbid rivers. Shovelnose sturgeon typically occur in areas with strong current with a substrate of sand mixed with gravel or mud (NatureServe 2021).	Suitable habitat was observed within the Project area within the Ohio River and Ice Creek (Figure 2, Appendix A).	ODNR – The Project area is within the range of the shovelnose sturgeon. The ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Mussels						
Butterfly/ <i>Ellipsaria lineolata</i>	E	N/A	This mussel is found in large rivers and stretches with pronounced current and substrate of coarse sand and gravel. It can also be found in deep impoundment areas (NatureServe 2021).	Suitable habitat was observed within the Project area within the Ohio River (Figure 2, Appendix A).	ODNR –The Natural Heritage Database has records of the butterfly within one mile of the Project area. The Natural Heritage Database has records of the butterfly within one mile of the Project area. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, ODNR recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. USFWS – No comments received.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP, therefore impacts to this species are not anticipated and avoidance dates are not applicable.
Elephant-ear/ <i>Elliptio crassidens crassidens</i>	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 2021).	Suitable habitat was observed within the Project area within the Ohio River and Ice Creek (Figure 2, Appendix A).	ODNR – The Project area is within the range of the elephant-ear mussel. The Natural Heritage Database has records of the elephant-ear within one mile of the Project area. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.

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					recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – No comments received.	
Snuffbox/ <i>Epioblasma triquetra</i>	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 2021). 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).	Suitable habitat was observed within the Project area within the Ohio River and Ice Creek (Figure 2, Appendix A).	ODNR – The Project area is within the range of the snuffbox mussel. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – Due to the project type, size, and location, we do not anticipate adverse effects to this species.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Washboard/ <i>Megalonaias nervosa</i>	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 2021).	Suitable habitat was observed within the Project area within the Ohio River (Figure 2, Appendix A).	ODNR – The Project area is within the range of the washboard mussel. The Natural Heritage Database has records of the washboard within one mile of the Project area. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – No comments received.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Ohio Pigtoe/ <i>Pleurobema cordatum</i>	E	N/A	Occurs in medium to large rivers directly above riffles of gravel, cobble, and boulder, but occasionally in muddy or sandy or gravel habitats at great depths (NatureServe 2021).	Suitable habitat was observed within the Project area within the Ohio River and Ice Creek (Figure 2, Appendix A).	ODNR – The Project area is within the range of the Ohio pigtoe mussel. The Natural Heritage Database has records of the Ohio pigtoe within one mile of the Project area. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – No comments received.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Pink Mucket/ <i>Lampsilis abrupta</i>	E	E	Large rivers in habitats ranging from silt to boulders, but apparently more commonly from gravel and cobble. Collected from shallow and	Suitable habitat was observed within the Project area within	ODNR – The Project area is within the range of the pink mucket mussel. This project must not have an impact on freshwater native mussels at the project site. If in-water	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are

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			deep water with current velocity ranging from zero to swift, but never standing pools of water (NatureServe 2021).	the Ohio River (Figure 2, Appendix A).	work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – Due to the project type, size, and location, we do not anticipate adverse effects to this species.	not anticipated and avoidance dates are not applicable.
Threehorn Wartyback/ <i>Obliquaria reflexa</i>	T	N/A	Habitat includes large rivers with moderately strong current and stable substrate of gravel, sand, and mud (NatureServe 2021).	Suitable habitat was observed within the Project area within the Ohio River (Figure 2, Appendix A).	ODNR – The Project area is within the range of the threehorn wartyback mussel. The Natural Heritage Database has records of the threehorn wartyback within one mile of the Project area. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – No comments received.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Black Sandshell/ <i>Ligumia recta</i>	T	N/A	Typically found in medium-sized to large rivers in locations with strong current and substrates of coarse sand and gravel with cobbles in water depths from several inches to six feet or more (NatureServe 2021).	Suitable habitat was observed within the Project area within the Ohio River and Ice Creek (Figure 2, Appendix A).	ODNR – The Project area is within the range of the black sandshell mussel. The Natural Heritage Database has records of the black sandshell within one mile of the Project area. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. . USFWS – No comments received.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Fanshell/ <i>Cyprogenia stegaria</i>	E	E	Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (NatureServe 2021).	Suitable habitat was observed within the Project area within the Ohio River and Ice Creek (Figure 2, Appendix A).	ODNR – The Project area is within the range of the fanshell mussel. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – Due to the project type, size, and location, we do not anticipate adverse effects to this species.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.

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Sheepnose/ <i>Plethobasus cyphus</i>	E	E	Usually found in large rivers in current on mud, sand, or gravel bottoms at depth of 1-2 meters or more (NatureServe 2021).	Suitable habitat was observed within the Project area within the Ohio River and Ice Creek (Figure 2, Appendix A).	<p>ODNR – The Project area is within the range of the sheepnose mussel. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area.</p> <p>USFWS – Due to the project type, size, and location, we do not anticipate adverse effects to this species.</p>	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Little Spectaclecase/ <i>Villosa lienosa</i>	E	N/A	Typically inhabits small creeks to medium-sized rivers, usually along the banks in slower currents (NatureServe 2021).	Suitable habitat was observed within the Project area within Ice Creek and Little Ice Creek (Figure 2, Appendix A).	<p>ODNR – The Project area is within the range of the little spectaclecase mussel. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – No comments received.</p>	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Ebonyshell/ <i>Reginaia ebenus</i>	E	N/A	Inhabits large rivers and prefers swift water and stable sand or gravel shoals. Coarse sand and gravel substrate provide the most suitable habitat. It can occur at depths of 10-15 feet with current associated (NatureServe 2021).	Suitable habitat was observed within the Project area within the Ohio River (Figure 2, Appendix A).	<p>ODNR – The Project area is within the range of the ebonyshell mussel. The Natural Heritage Database has records of the ebonyshell within one mile of the Project area. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – No comments received.</p>	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Wartyback/ <i>Cyclonias nodulata</i>	E	N/A	The wartyback occurs in medium to large rivers with a substrate of sand and mud. The species is typically found at depths of five to six meters (Parmalee and Bogan 1998).	Suitable habitat was observed within the Project area within the Ohio River and Ice Creek (Figure 2, Appendix A).	<p>ODNR – The Project area is within the range of the wartyback mussel. The Natural Heritage Database has records of the wartyback within one mile of the Project area. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – No comments received.</p>	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.

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Monkeyface/ <i>Quadrula metanevra</i>	E	N/A	The monkeyface prefers medium to large rivers. This species typically occurs in areas with a depth greater than two meters and a stable substrate of gravel or mixed sand and gravel (NatureServe 2021).	Suitable habitat was observed within the Project area within the Ohio River (Figure 2, Appendix A).	ODNR – The Project area is within the range of the monkeyface mussel. This project must not have an impact on freshwater native mussels at the project site. If in-water work is planned in any stream that meets the Ohio Mussel Survey Protocol criteria, ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, ODNR recommends a professional malacologist conduct a mussel survey in the Project area. USFWS – No comments received.	Suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Mammals						
Indiana Bat/ <i>Myotis sodalis</i>	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 2007a; USFWS 2020b). 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 in abandoned underground mines (Brack et al. 2010).	Suitable summer roosting and foraging habitat was observed within mixed early successional/second growth deciduous forest habitat areas within the Project area (Figure 3, Appendix A).	ODNR – If suitable habitat occurs within the Project area, the ODNR recommends trees be conserved. If suitable habitat occurs within the Project area and trees must be cut, the ODNR recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the ODNR recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species. USFWS – All projects in the State of Ohio lie within range of the Indiana bat. Should the proposed project site contain trees ≥3 inches diameter at breast height (dbh), we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, we recommend removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats.	No potential hibernacula were observed. However, suitable summer roosting and foraging habitat was observed within mixed early successional/second growth deciduous forest habitat areas within the Project area. It is anticipated that AEP will conduct any necessary tree clearing between October 1 and March 31. Therefore, impacts to this species are not anticipated. If any summer tree clearing is determined necessary, AEP will proceed in accordance with agency requirements.
Northern Long-eared Bat/ <i>Myotis septentrionalis</i>	T	T	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 2020a). 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).	Suitable summer roosting and foraging habitat was observed within mixed early successional/second growth deciduous forest habitat areas within the Project area (Figure 3, Appendix A).	ODNR – No comments received. USFWS – All projects in the State of Ohio lie within range of the northern long-eared bat. Should the proposed project site contain trees ≥3 inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, we recommend removal of any trees ≥3 inches dbh only occur between	No potential hibernacula were observed. However, suitable summer roosting and foraging habitat was observed within mixed early successional/second growth deciduous forest habitat areas within the Project area. It is anticipated that AEP will conduct any necessary tree clearing between October 1 and March 31. Therefore, impacts to this species are not anticipated. If any summer tree clearing is determined necessary, AEP will proceed in accordance with agency requirements.

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					October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to northern long-eared bats. Incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule.	
Little Brown Bat/ <i>Myotis lucifugus</i>	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).	Suitable summer roosting and foraging habitat was observed within mixed early successional/second growth deciduous forest habitat areas within the Project area. Additionally, suitable foraging habitat was observed along larger streams within the Project area (Figure 3, Appendix A).	ODNR – No comments received. USFWS – All projects in the State of Ohio lie within range of the northern long-eared bat. Should the proposed project site contain trees ≥3 inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, we recommend removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to northern long-eared bats. Incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule.	No potential hibernacula were observed. However, suitable summer roosting and foraging habitat was observed within mixed early successional/second growth deciduous forest habitat areas and along larger streams within the Project area. It is anticipated that AEP will conduct any necessary tree clearing between October 1 and March 31. Therefore, impacts to this species are not anticipated. If any summer tree clearing is determined necessary, AEP will proceed in accordance with agency requirements.
Tri-colored Bat/ <i>Perimyotis subflavus</i>	E	N/A	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 tri-colored 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).	Suitable summer roosting and foraging habitat was observed within mixed early successional/second growth deciduous forest habitat areas within the Project area. Additionally, suitable foraging habitat was observed along larger streams within the Project area (Figure 3, Appendix A).	ODNR – No comments received. USFWS – No comments received.	No potential hibernacula were observed. However, suitable summer roosting and foraging habitat was observed within mixed early successional/second growth deciduous forest habitat areas and along larger streams within the Project area. It is anticipated that AEP will conduct any necessary tree clearing between October 1 and March 31. Therefore, impacts to this species are not anticipated. If any summer tree clearing is determined necessary, AEP will proceed in accordance with agency requirements.
Plants						
Running Buffalo Clover/ <i>Trifolium stoloniferum</i>	E	E	Mesic habitats with partial to filtered sunlight including woodlands and mowed lawn (USFWS 2007b).	Potentially suitable habitat was observed throughout the Project area along ATV trails and bottom lands surrounding	ODNR – No comments received. USFWS – Due to the project type, size, and location, we do not anticipate adverse effects to this species.	Potentially suitable habitat was observed within the Project area along existing ATV trails and bottom land surrounding intermittent and perennial streams. However, no running buffalo clover individuals were observed and no impacts to the potentially suitable habitat are anticipated as part of the Project. If the suitable habitat areas will need to be impacted during construction, a pre-construction flowering season survey may be

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Common Name/Scientific Name	State Listed Status ^{1,2}	Federally Listed Status ^{1,3}	Typical Habitat	Habitat Observed	Agency Comment (Appendix B)	Potential Impacts and Avoidance Dates
				intermittent and perennial streams (Figure 3, Appendix A).		necessary to confirm presence/absence and to accurately determine if the Project could have potential impacts on this species.
Maypop/ <i>Passiflora incarnata</i>	T	N/A	This species is typically found in dry soils in usually open situations: open woods, thickets, rocky open riverbanks; also, fields, roadsides, and railroad banks (ODNR 2020).	A limited amount of potentially suitable habitat is present within the Project area in the form of old field (thickets), railroad banks, and roadsides.	ODNR – The Natural Heritage Database has records of the maypop within one mile of the Project area. USFWS – No comments received.	A limited amount of potentially suitable habitat is present within the Project area in the form of old field (thickets), railroad banks, and roadsides. Therefore, impacts to this species are possible but not anticipated.
Gray Beard-Tongue/ <i>Penstemon canescens</i>	T	N/A	This species is typically found in dry, open fields and roadsides (ODNR 2020).	A limited amount of potentially suitable habitat is present within the Project area in the form of old field and roadside habitats.	ODNR – The Natural Heritage Database has records of the gray beard-tongue within one mile of the Project area. USFWS – No comments received.	A limited amount of potentially suitable habitat is present within the Project area in the form of old field and roadside habitats. Therefore, impacts to this species are possible but not anticipated.
Blue Scorpion-Weed/ <i>Phacelia covillei</i>	E	N/A	This species is typically found in sun or semi-shade in a variety of moist or well-drained woods and thickets (ODNR 2020).	Potentially suitable habitat is present within the Project area in the form of old field, early successional forest, and mixed second growth/early successional deciduous forest.	ODNR – The Natural Heritage Database has records of the blue scorpion-weed within one mile of the Project area. USFWS – No comments received.	Potentially suitable habitat is present within the Project area in the form of old field, early successional forest, and mixed second growth/early successional deciduous forest. Therefore, impacts to this species are possible but not anticipated.
Amphibians						
Eastern Spadefoot/ <i>Scaphiopus holbrookii</i>	E	N/A	Eastern spadefoots occur in areas of sandy, gravelly, or soft, light soils in wooded or unwooded terrain. In Ohio, it is found only in areas of sandy soils that are associated with river valleys in the southeastern portion of the State. Breeding habitats are located within these areas and may include flooded agricultural fields or other water-holding depressions (NatureServe 2021; ODNR 2020).	No suitable habitat was observed within the Project area.	ODNR - The Project is within the range of the eastern spadefoot. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions. Due to the location, and the type of habitat present at the project site, and within the vicinity of the Project area, this project is not likely to impact this species. USFWS – No comments received.	No suitable habitat was observed within the Project. Therefore, impacts to this species are not anticipated.
Green Salamander/ <i>Aneides aeneus</i>	E	N/A	The green salamander typically utilizes the damp crevices of shaded rock outcroppings and ledges. Also, occurs less frequently nearby under the loose bark of fallen trees, and the damp ground under fallen trees (NatureServe 2021).	Potentially suitable habitat was observed within the Project area. Sandstone rock faces with moist	ODNR - The Project area is within the range of the green salamander. This species inhabits the deep moist cracks of rock cliffs. Due to the location, and the type of work proposed, this project is not likely to impact this species. USFWS – No comments received.	Potentially suitable habitat was present within the Project area (moist crevices in sandstone rock faces), however, no impacts to this type of habitat are anticipated. Therefore, impacts to this species are not anticipated.

Results
May 19, 2021

Common Name/Scientific Name	State Listed Status ^{1,2}	Federally Listed Status ^{1,3}	Typical Habitat	Habitat Observed	Agency Comment (Appendix B)	Potential Impacts and Avoidance Dates
				crevices were observed along Streams 5 and 6.		
Mud Salamander <i>Pseudotriton montanus</i>	T	N/A	Muddy springs, slow floodplain streams, and swamps along slow streams; backwater ponds and marshes created by beaver activity (NatureServe 2021).	No suitable habitat was observed within the Project area.	ODNR - The project is within the range of the mud salamander. Due to the location, and the type of work proposed, this project is not likely to impact this species. USFWS – No comments received.	No suitable habitat was observed within the Project area. Therefore, impacts to this species are not anticipated.
¹ E=Endangered; T=Threatened; SC=Species of Concern; N/A= Not Applicable ² According to Ohio Department of Natural Resources, State Listed Wildlife and Plant Species by County (ODNR 2021). ³ According to USFWS (2018).						

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 October 19 to 21, 2020, December 17 and 18, 2020, and January 21 and 22, 2021. During the field surveys, three PEM wetlands totaling approximately 0.19 acres, one PSS wetland totaling approximately 0.39 acres, one PFO wetland totaling approximately 0.08 acres, and one mixed PEM/PSS wetland totaling approximately 0.10 acres were identified within the Project area. Additionally, four perennial streams totaling approximately 1,299 linear feet in length, nine intermittent streams totaling approximately 1,516 linear feet in length, and five ephemeral streams totaling approximately 484 linear feet in length were delineated within the Project area. Of the four perennial streams identified within the Project area, three are named USGS streams (Ohio River, Ice Creek, and Little Ice Creek). See Table 2 and Table 4 for more information regarding wetlands and streams identified within the Project area, respectively. 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. Data forms for the identified features are provided in Appendix D and representative photographs are provided in Appendix C.

An ODNR Ohio Natural Heritage Program data request and environmental review request letter was sent to the ODNR Office of Real Estate on November 21, 2019. The ODNR Office of Real Estate Response dated January 8, 2020 (Appendix B), stated that the Project area is within a one mile radius of the following species: maypop (state-listed threatened); gray beard-tongue (state-listed threatened); blue scorpion-weed (state-listed endangered); wartyback (state-listed endangered); butterfly (state-listed endangered); elephant-ear (state-listed endangered); black sandshell (state-listed threatened); washboard (state-listed endangered); threehorn wartyback (state-listed threatened); Ohio pigtoe (state-listed endangered); ebonyshell (state-listed endangered); channel darter (state-listed threatened); river darter (state-listed threatened); green salamander (state-listed endangered); and Little Ice Creek Conservation Site, a state-listed high quality natural area. No work on the Project is proposed in perennial streams. Therefore, no impacts to the state-listed threatened and endangered mussel species known to occur within a one mile radius of the Project area are anticipated. Potentially suitable habitat for maypop, gray beard-tongue, and blue scorpion-weed is present within the Project area, as described in Table 5. The Little Ice Creek Conservation Site is located approximately 3,000 feet southeast of the easternmost portion of the Project area and therefore will not be impacted.

Additionally, the ODNR stated that the Project area is within the range of the Indiana bat. If suitable habitat occurs within the Project area, the ODNR recommends trees be conserved. If suitable habitat occurs within the Project area and trees must be cut, the ODNR recommends cutting occur between October 1 and March 31. If no tree removal is proposed, this project is not likely to impact this species. If suitable roost trees must be cut during the summer months, the

**ECOLOGICAL RESOURCES INVENTORY REPORT, BELLEFONTE EXTENSION 138 KV LINE REBUILD PROJECT,
LAWRENCE COUNTY, OHIO**

Conclusions and Recommendations
May 19, 2021

ODNR recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of Project area or four net nights per 0.5 kilometer for linear projects.

According to the ODNR, the state-listed endangered northern long-eared bat occurs statewide in Ohio. The Project area contains potentially suitable roosting habitat for this species and the Indiana bat (mixed early successional/second growth deciduous forest), but no potentially suitable hibernacula for these species were observed within the Project area. AEP intends to conduct any required tree clearing between October 1 and March 31. Therefore, no impacts to these species are anticipated.

The ODNR states that the Project is within the range of the following state-listed and federally listed threatened and endangered mussel species: the sheepsnose, fanshell, pink mucket, snuffbox, ebonyshell, elephant-ear, washboard, monkeyface, little spectaclecase, Ohio pigtoe, threeshorn wartyback, and the black sandshell. Furthermore, the ODNR stated that this project must not have an impact on freshwater native mussels at the Project site and this ruling applies to both listed and non-listed mussel species. Per the Ohio mussel Survey Protocol (ODNR and USFWS 2020), all Group 2, 3, and 4 streams require a mussel survey if impacts to them will be required for construction of the Project. Additionally, Group 1 streams and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the *Reconnaissance Survey for Unionid Mussels* (ODNR and USFWS 2020) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the ODNR recommends the applicant provide information to indicate no mussel impacts will occur. If impacts are unavoidable, a professional malacologist is recommended to conduct a mussel survey in the Project area. If mussels that cannot be avoided are found in the Project area, those mussels are to be collected and relocated by a professional malacologist and done in accordance with the Ohio Mussel Survey Protocol. Since no in-water work is proposed by AEP in a perennial stream, impacts to the above listed mussel species are not anticipated.

The ODNR also states that the Project is within the range of the following state-listed endangered and threatened fish species: the goldeneye, shoal chub, shovelnose sturgeon, channel darter, and river darter. The ODNR recommends no in-water work in the Ohio River from March 15 through June 30, and in other perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, the ODNR stated that this project is not likely to impact these or other aquatic species. Because no in-water work is proposed by AEP in a perennial stream, impacts to the above listed fish species are not anticipated.

Additionally, The ODNR states that the project is within the range of the timber rattlesnake, a state endangered species and federal species of concern. However, due to the location of the project, and/or the type of work proposed, the ODNR stated that this project is not likely to impact this species.

**ECOLOGICAL RESOURCES INVENTORY REPORT, BELLEFONTE EXTENSION 138 KV LINE REBUILD PROJECT,
LAWRENCE COUNTY, OHIO**

Conclusions and Recommendations
May 19, 2021

The Project is also within range of the following state-listed endangered and threatened amphibian species: the green salamander, eastern spadefoot, and the mud salamander. However, the ODNR stated that due to the location, type of work proposed, and/or the type of habitat present at the Project site and within the vicinity of the Project area, this Project is not likely to impact these species.

A technical assistance request letter was also submitted to the USFWS on November 18, 2019. The USFWS response letter dated December 5, 2019, states that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project area (Appendix B). The USFWS recommends that impacts to wetlands and other water resources be avoided or minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

According to the USFWS response, all projects in the State of Ohio lie within range of the federally endangered Indiana bat and the federally threatened northern long-eared bat. In Ohio, presence of these species is assumed wherever suitable habitat occurs unless a presence/probable absence survey has been performed to document probable absence. No hibernacula for these species were observed within the Project area. However, the Project area does contain potentially suitable summer roosting and foraging habitat for the Indiana bat and northern long-eared bat. Potentially suitable summer roosting habitat observed within the Project area was limited to mixed early successional/second growth deciduous forest habitat. The USFWS response letter stated that, should the Project site contain trees ≥ 3 inches dbh, the USFWS recommends trees be saved whenever possible. If any caves or abandoned mines may be disturbed, further coordination is requested. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, the USFWS recommends that removal of trees ≥ 3 inches dbh only occur between October 1 and March 31 in order to avoid adverse effects to these species. If implementation of seasonal tree clearing is not possible, the USFWS recommends summer presence/probable absence surveys be conducted between June 1 and August 15. There are no potential bat hibernacula within the Project area and AEP intends to conduct any necessary tree clearing between October 1 and March 31. Therefore, impacts to the northern long eared bat or Indiana bat are not anticipated.

Additionally, the USFWS stated that they do not anticipate adverse effects to any other federally endangered, threatened, proposed or candidate species due to the project type, size, and location.

References
May 19, 2021

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LAWRENCE COUNTY, OHIO**

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**ECOLOGICAL RESOURCES INVENTORY REPORT, BELLEFONTE EXTENSION 138 KV LINE REBUILD PROJECT,
LAWRENCE COUNTY, OHIO**

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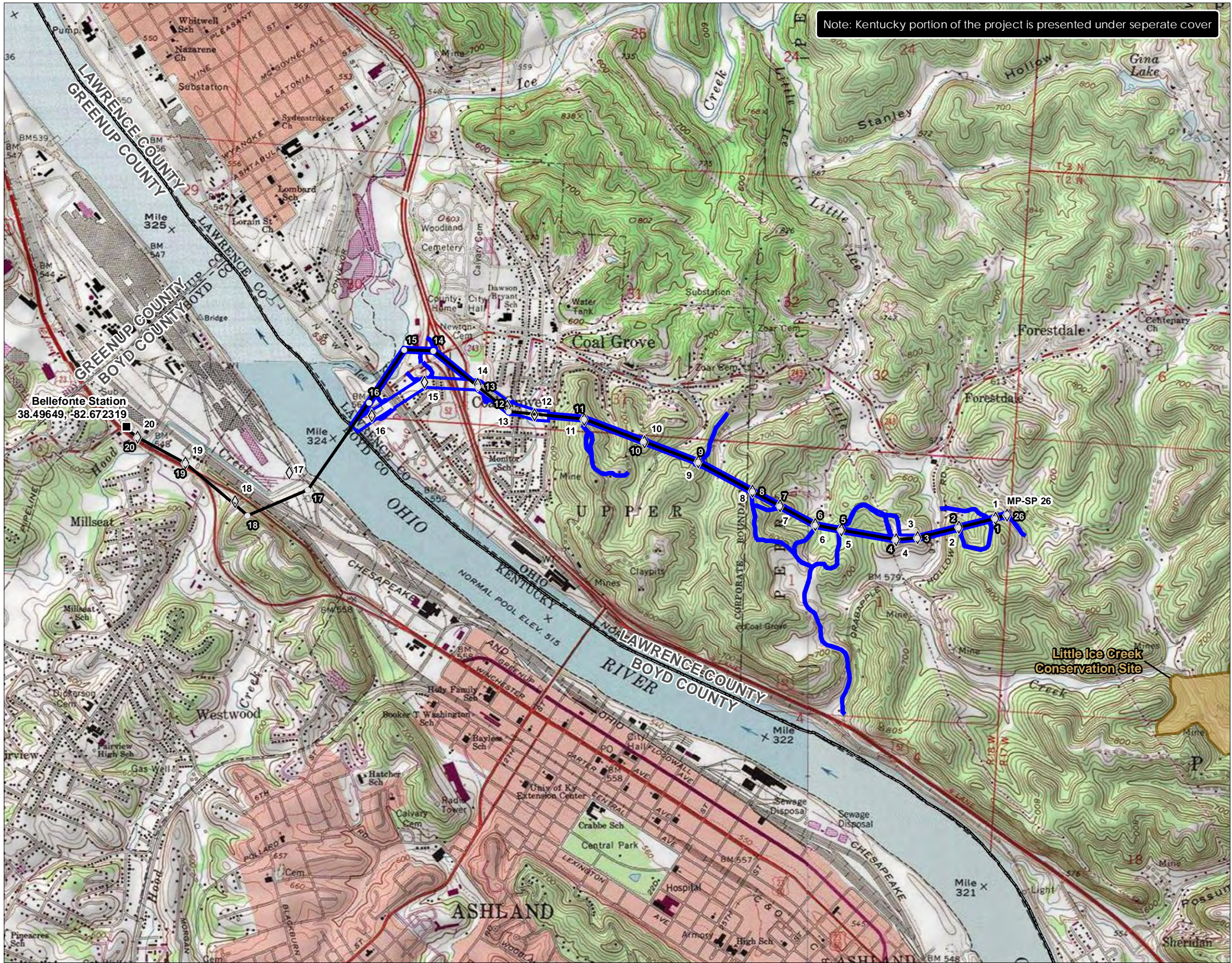
May 19, 2021

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Appendix A FIGURES

A.1 FIGURE 1 – PROJECT LOCATION MAP



Note: Kentucky portion of the project is presented under separate cover

Figure No.

1

Title

Project Location Map

Client/Project

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location

Lawrence County, Ohio

193707276

Prepared by JH on 2020-10-22

Technical Review by AJK on 2021-02-11

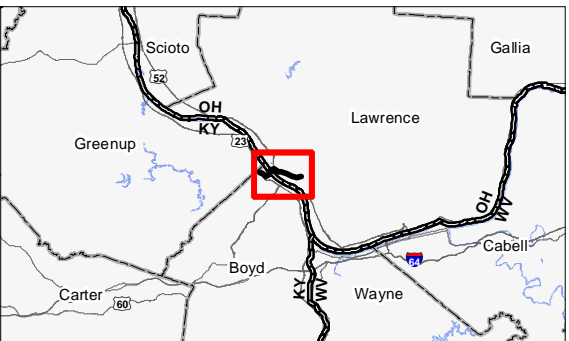
Independent Review by DJG on 2021-02-11

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Legend

- AEP Substation
- Existing Structure
- ◇ Proposed Structure
- Existing 138 kV Transmission Line
- - - Proposed 138 kV Transmission Line
- Project Area
- Little Ice Creek Conservation Site



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, NADS
3. Background: USGS 7.5' Topographic Quadrangles - Ashland, KY, OH (1985), Catletsburg, KY, OH, VA (1985), OH (1983), Ironton, OH (1985), Kitts Hill, OH (1983)



A.2 **FIGURE 2 – WETLAND AND WATERBODY DELINEATION MAP**

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Figure No.
2

Title
Wetland and Waterbody
Delineation Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio

193707276

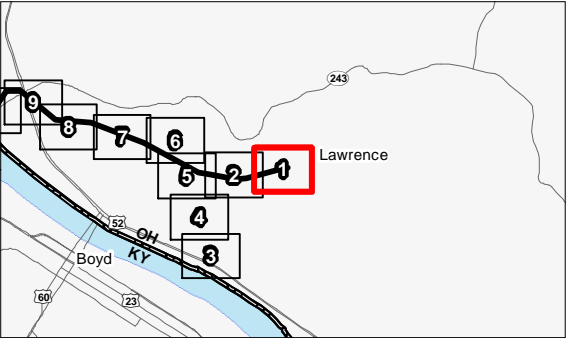
Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11

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N

Legend

Existing Structure	Upland Drainage Feature
Proposed Structure	Approximate Upland Drainage Feature
Existing 138 kV Transmission Line	Field Delineated Waterway
Proposed 138 kV Transmission Line	Approximate Waterway
Existing Access Road	Field Delineated Waterway Area
New Access Road	Field Delineated Emergent Wetland
Project Area	Field Delineated Forested Wetland
Photo Location	Field Delineated Scrub-Shrub Wetland
Existing Culvert	Approximate Wetland
Wetland Determination Sample Point	National Wetlands Inventory Feature
Spring Location	FEMA Flood Hazard Area
	100-year Floodplain
	Floodway



Notes

- Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
- Data Sources Include: Stantec, AEP, USGS, FEMA, OGRIP, NADS
- Orthophotography: 2019 NAIP



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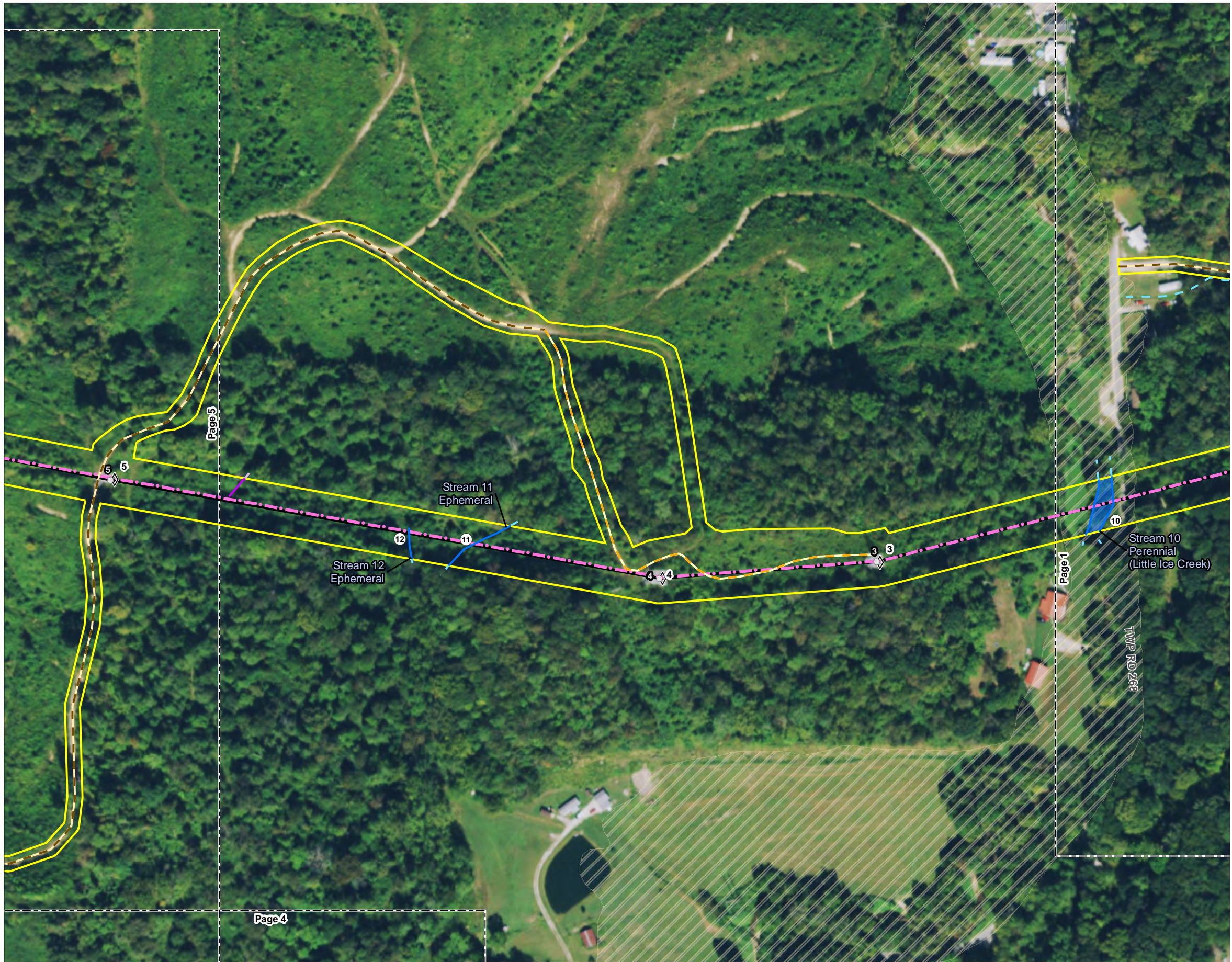


Figure No.
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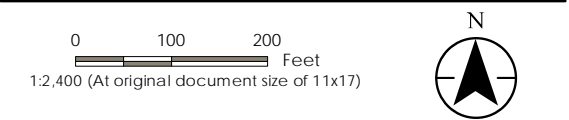
Title
Wetland and Waterbody
Delineation Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

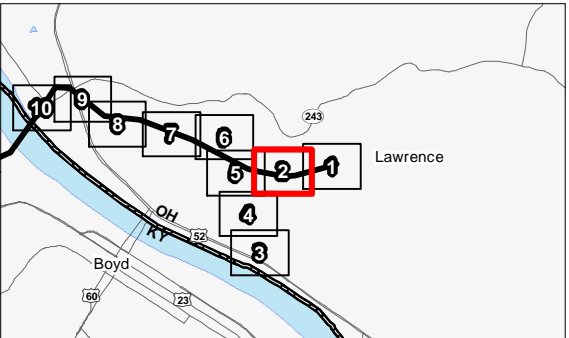
Project Location
Lawrence County, Ohio

193707276

Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend
- | | |
|------------------------------------|--------------------------------------|
| Existing Structure | Upland Drainage Feature |
| Proposed Structure | Approximate Upland Drainage Feature |
| Existing 138 kV Transmission Line | Field Delineated Waterway |
| Proposed 138 kV Transmission Line | Approximate Waterway |
| Existing Access Road | Field Delineated Waterway Area |
| New Access Road | Field Delineated Emergent Wetland |
| Project Area | Field Delineated Forested Wetland |
| Photo Location | Field Delineated Scrub-Shrub Wetland |
| Existing Culvert | Approximate Wetland |
| Wetland Determination Sample Point | National Wetlands Inventory Feature |
| Spring Location | FEMA Flood Hazard Area |
| | 100-year Floodplain |
| | Floodway |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, FEMA, OGRIP, NADS
3. Orthophotography: 2019 NAIP





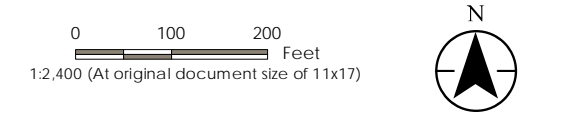
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Title
Wetland and Waterbody
Delineation Map

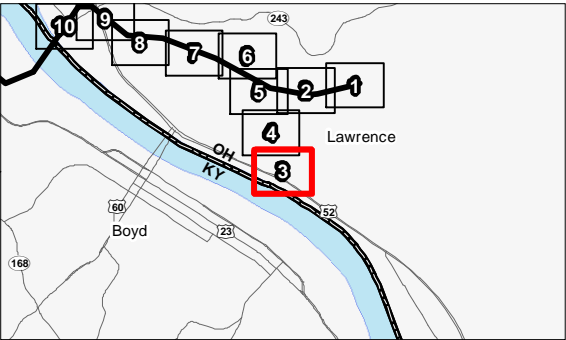
Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio

193707276
Prepared by JLH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend
- Existing Structure
 - Proposed Structure
 - Existing 138 kV Transmission Line
 - Proposed 138 kV Transmission Line
 - Existing Access Road
 - New Access Road
 - Project Area
 - Photo Location
 - Existing Culvert
 - Wetland Determination Sample Point
 - Spring Location
 - Upland Drainage Feature
 - Approximate Upland Drainage Feature
 - Field Delineated Waterway
 - Approximate Waterway
 - Field Delineated Waterway Area
 - Field Delineated Emergent Wetland
 - Field Delineated Forested Wetland
 - Field Delineated Scrub-Shrub Wetland
 - Approximate Wetland
 - National Wetlands Inventory Feature
 - FEMA Flood Hazard Area
 - 100-year Floodplain
 - Floodway



Notes

- Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
- Data Sources Include: Stantec, AEP, USGS, FEMA, OGRIP, NADS
- Orthophotography: 2019 NAIP



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Figure No.
2

Title
Wetland and Waterbody
Delineation Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio

193707276

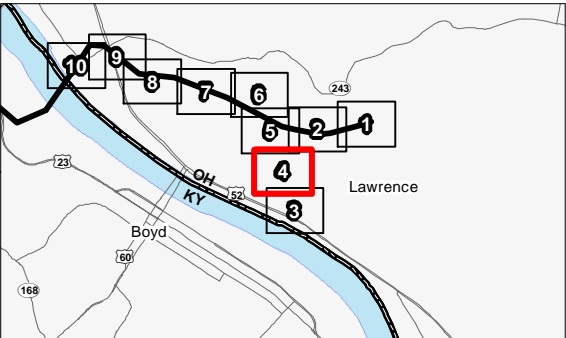
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Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11

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N

Legend

Existing Structure	Upland Drainage Feature
Proposed Structure	Approximate Upland Drainage Feature
Existing 138 kV Transmission Line	Field Delineated Waterway
Proposed 138 kV Transmission Line	Approximate Waterway
Existing Access Road	Field Delineated Waterway Area
New Access Road	Field Delineated Emergent Wetland
Project Area	Field Delineated Forested Wetland
Photo Location	Field Delineated Scrub-Shrub Wetland
Existing Culvert	Approximate Wetland
Wetland Determination Sample Point	National Wetlands Inventory Feature
Spring Location	FEMA Flood Hazard Area
	100-year Floodplain
	Floodway



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, FEMA, OGRIP, NADS
3. Orthophotography: 2019 NAIP





Figure No.

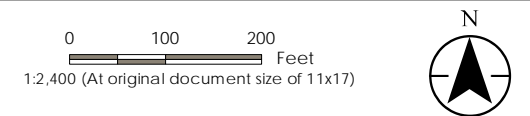
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Wetland and Waterbody Delineation Map























Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

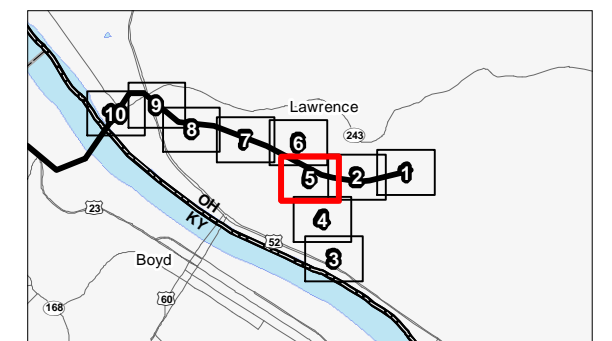
Project Location
Lawrence County, Ohio

193707276
Prepared by JLH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



Legend

- | | | | |
|---|------------------------------------|---|--------------------------------------|
|  | Existing Structure |  | Upland Drainage Feature |
|  | Proposed Structure |  | Approximate Upland Drainage Feature |
|  | Existing 138 kV Transmission Line |  | Field Delineated Waterway |
|  | Proposed 138 kV Transmission Line |  | Approximate Waterway |
|  | Existing Access Road |  | Field Delineated Waterway Area |
|  | New Access Road |  | Field Delineated Emergent Wetland |
|  | Project Area |  | Field Delineated Forested Wetland |
|  | Photo Location |  | Field Delineated Scrub-Shrub Wetland |
|  | Existing Culvert |  | Approximate Wetland |
|  | Wetland Determination Sample Point |  | National Wetlands Inventory Feature |
|  | Spring Location |  | FEMA Flood Hazard Area |
| | |  | 100-year Floodplain |
| | |  | Floodway |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, FEMA, OGRIP, NADS
3. Orthophotography: 2019 NAIP





Figure No.
2

Title
Wetland and Waterbody
Delineation Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio

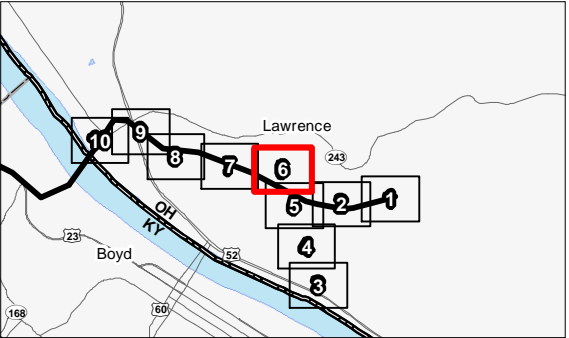
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Prepared by JLH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11

0 100 200 Feet
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N

- Legend
- Existing Structure
 - Proposed Structure
 - Existing 138 kV Transmission Line
 - Proposed 138 kV Transmission Line
 - Existing Access Road
 - New Access Road
 - Project Area
 - Photo Location
 - Existing Culvert
 - Wetland Determination Sample Point
 - Spring Location
 - Upland Drainage Feature
 - Approximate Upland Drainage Feature
 - Field Delineated Waterway
 - Approximate Waterway
 - Field Delineated Waterway Area
 - Field Delineated Emergent Wetland
 - Field Delineated Forested Wetland
 - Field Delineated Scrub-Shrub Wetland
 - Approximate Wetland
 - National Wetlands Inventory Feature
 - FEMA Flood Hazard Area
 - 100-year Floodplain
 - Floodway



Notes

- Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
- Data Sources Include: Stantec, AEP, USGS, FEMA, OGRIP, NADS
- Orthophotography: 2019 NAIP

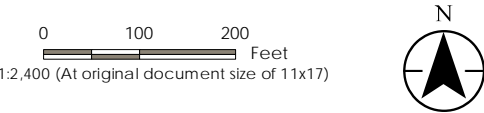




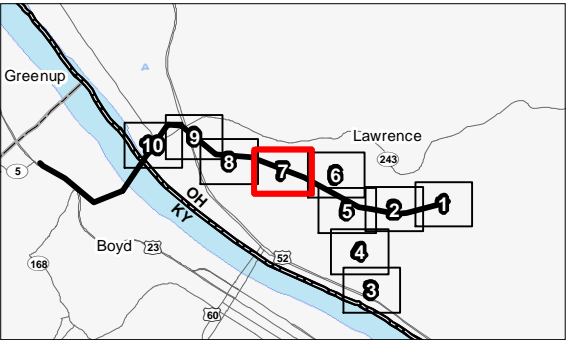
Figure No.
2
Title
Wetland and Waterbody
Delineation Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio
193707276
Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend
- | | |
|------------------------------------|--------------------------------------|
| Existing Structure | Upland Drainage Feature |
| Proposed Structure | Approximate Upland Drainage Feature |
| Existing 138 kV Transmission Line | Field Delineated Waterway |
| Proposed 138 kV Transmission Line | Approximate Waterway |
| Existing Access Road | Field Delineated Waterway Area |
| New Access Road | Field Delineated Emergent Wetland |
| Project Area | Field Delineated Forested Wetland |
| Photo Location | Field Delineated Scrub-Shrub Wetland |
| Existing Culvert | Approximate Wetland |
| Wetland Determination Sample Point | National Wetlands Inventory Feature |
| Spring Location | FEMA Flood Hazard Area |
| | 100-year Floodplain |
| | Floodway |



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, FEMA, OGRIP, NADS
3. Orthophotography: 2019 NAIP



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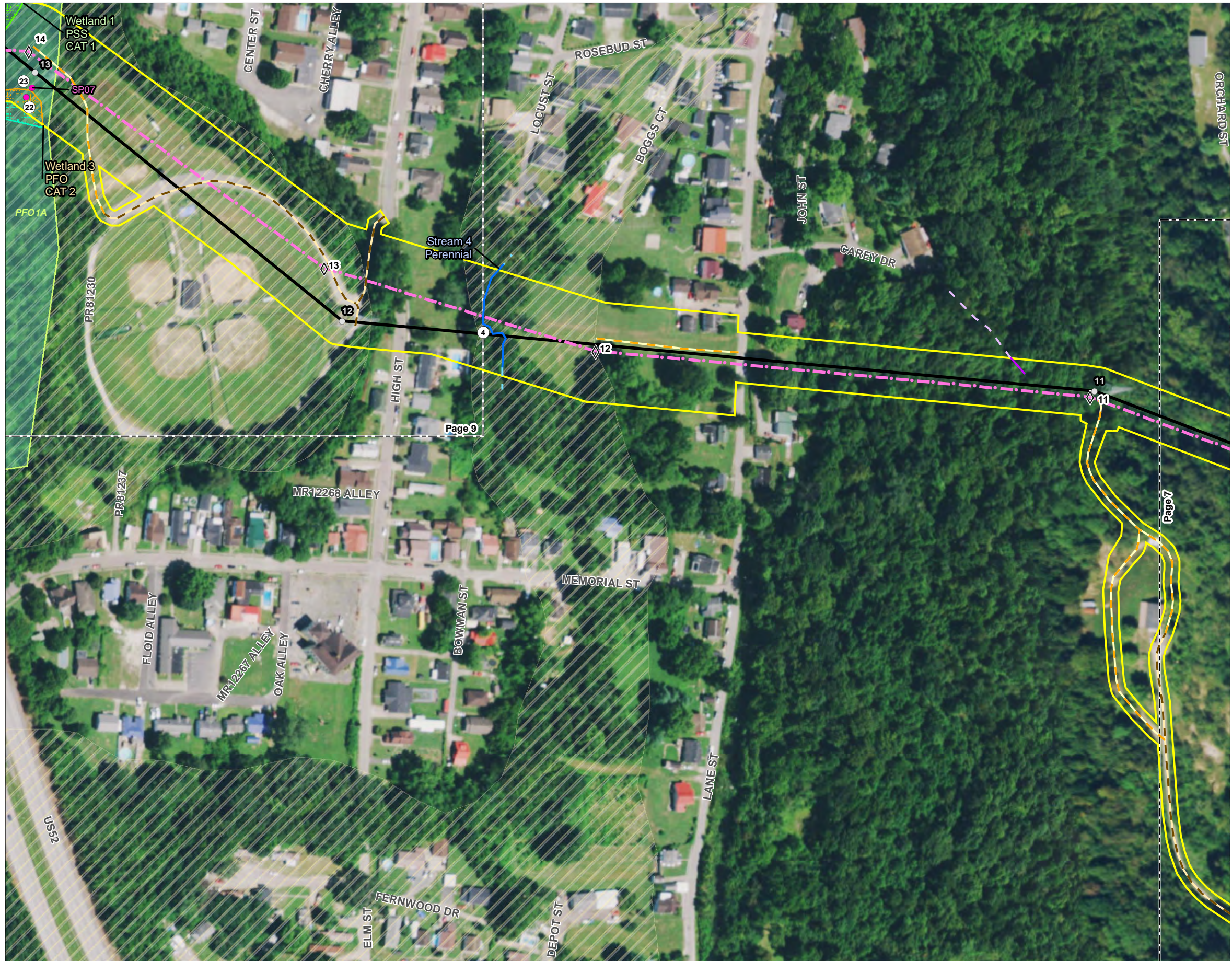


Figure No.
2

Title
Wetland and Waterbody
Delineation Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio

193707276

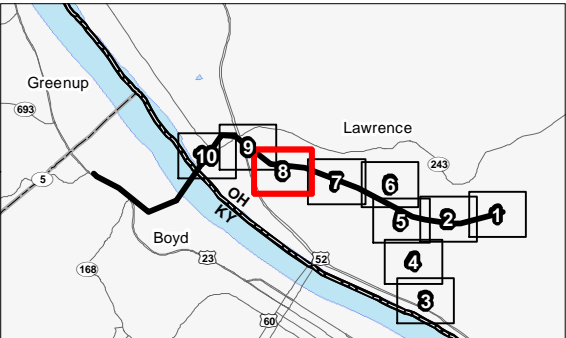
Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11

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

N

Legend

Existing Structure	Upland Drainage Feature
Proposed Structure	Approximate Upland Drainage Feature
Existing 138 kV Transmission Line	Field Delineated Waterway
Proposed 138 kV Transmission Line	Approximate Waterway
Existing Access Road	Field Delineated Waterway Area
New Access Road	Field Delineated Emergent Wetland
Project Area	Field Delineated Forested Wetland
Photo Location	Field Delineated Scrub-Shrub Wetland
Existing Culvert	Approximate Wetland
Wetland Determination Sample Point	National Wetlands Inventory Feature
Spring Location	FEMA Flood Hazard Area
	100-year Floodplain
	Floodway



Notes

- Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
- Data Sources Include: Stantec, AEP, USGS, FEMA, OGRIP, NADs
- Orthophotography: 2019 NAIP



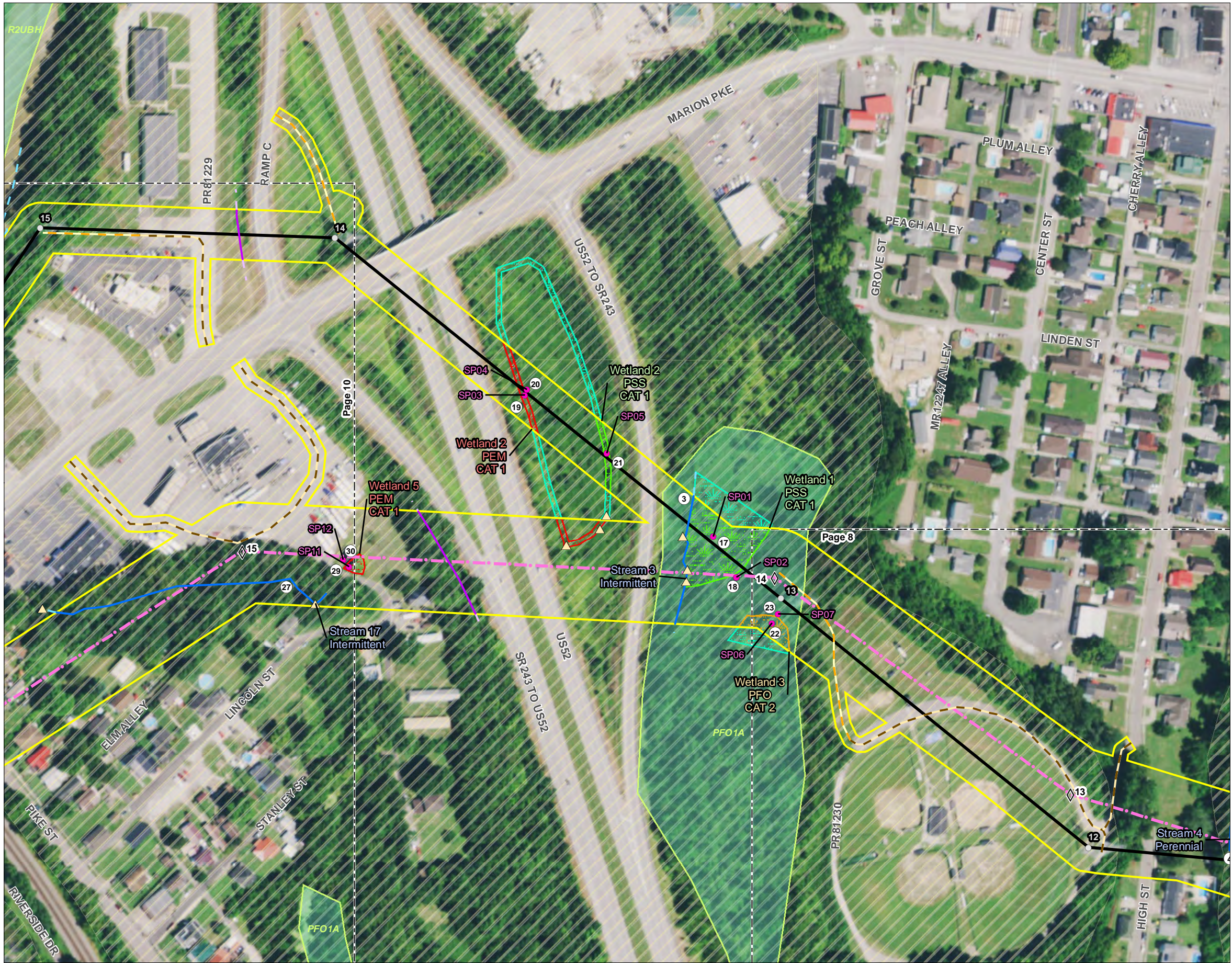


Figure No.
2

Title
Wetland and Waterbody
Delineation Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellevue Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio

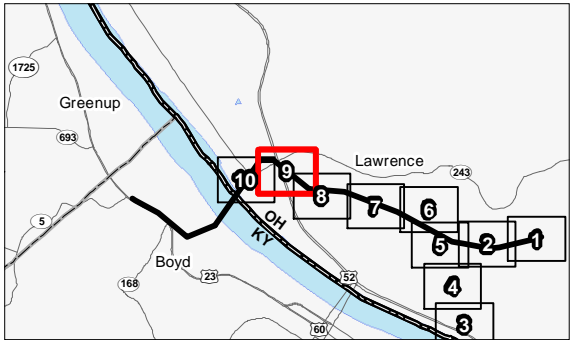
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Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11

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1:2,400 (At original document size of 11x17)

N

Legend

Existing Structure	Upland Drainage Feature
Proposed Structure	Approximate Upland Drainage Feature
Existing 138 kV Transmission Line	Field Delineated Waterway
Proposed 138 kV Transmission Line	Approximate Waterway
Existing Access Road	Field Delineated Waterway Area
New Access Road	Field Delineated Emergent Wetland
Project Area	Field Delineated Forested Wetland
Photo Location	Field Delineated Scrub-Shrub Wetland
Existing Culvert	Approximate Wetland
Wetland Determination Sample Point	National Wetlands Inventory Feature
Spring Location	FEMA Flood Hazard Area
	100-year Floodplain
	Floodway



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, FEMA, OGRIP, NADS
3. Orthophotography: 2019 NAIP



A.3 FIGURE 3 – HABITAT ASSESSMENT MAP

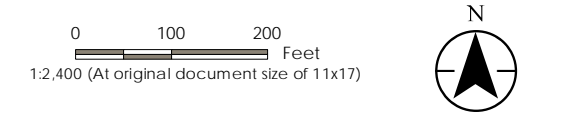


Figure No.
3
Title
Habitat Assessment Map

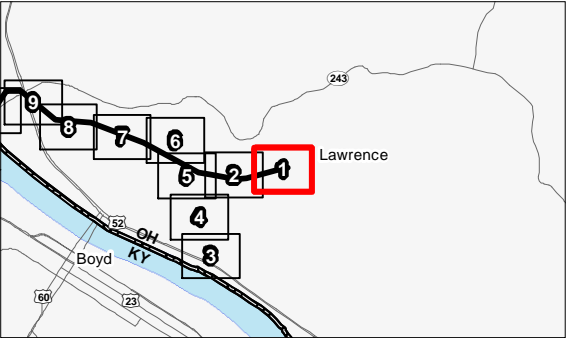
Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio

193707276
Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend
- | | |
|-------------------------------------|---|
| Existing Structure | Field Delineated Emergent Wetland |
| Proposed Structure | Field Delineated Forested Wetland |
| Existing 138 kV Transmission Line | Field Delineated Scrub-Shrub Wetland |
| Proposed 138 kV Transmission Line | Approximate Wetland |
| Existing Access Road | Habitat Area |
| New Access Road | Early Successional Deciduous Forest |
| Project Area | Mixed Early Successional/Second Growth Deciduous Forest |
| Photo Location | Old Field |
| Existing Culvert | Pasture |
| Spring Location | Maintained Lawn |
| Upland Drainage Feature | Existing ATV Trail |
| Approximate Upland Drainage Feature | Industrial |
| Field Delineated Waterway | Existing Railroad |
| Approximate Waterway | Existing Paved Roadway |
| Field Delineated Waterway Area | Existing Gravel Roadway |



Notes

- Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
- Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
- Orthophotography: 2019 NAIP



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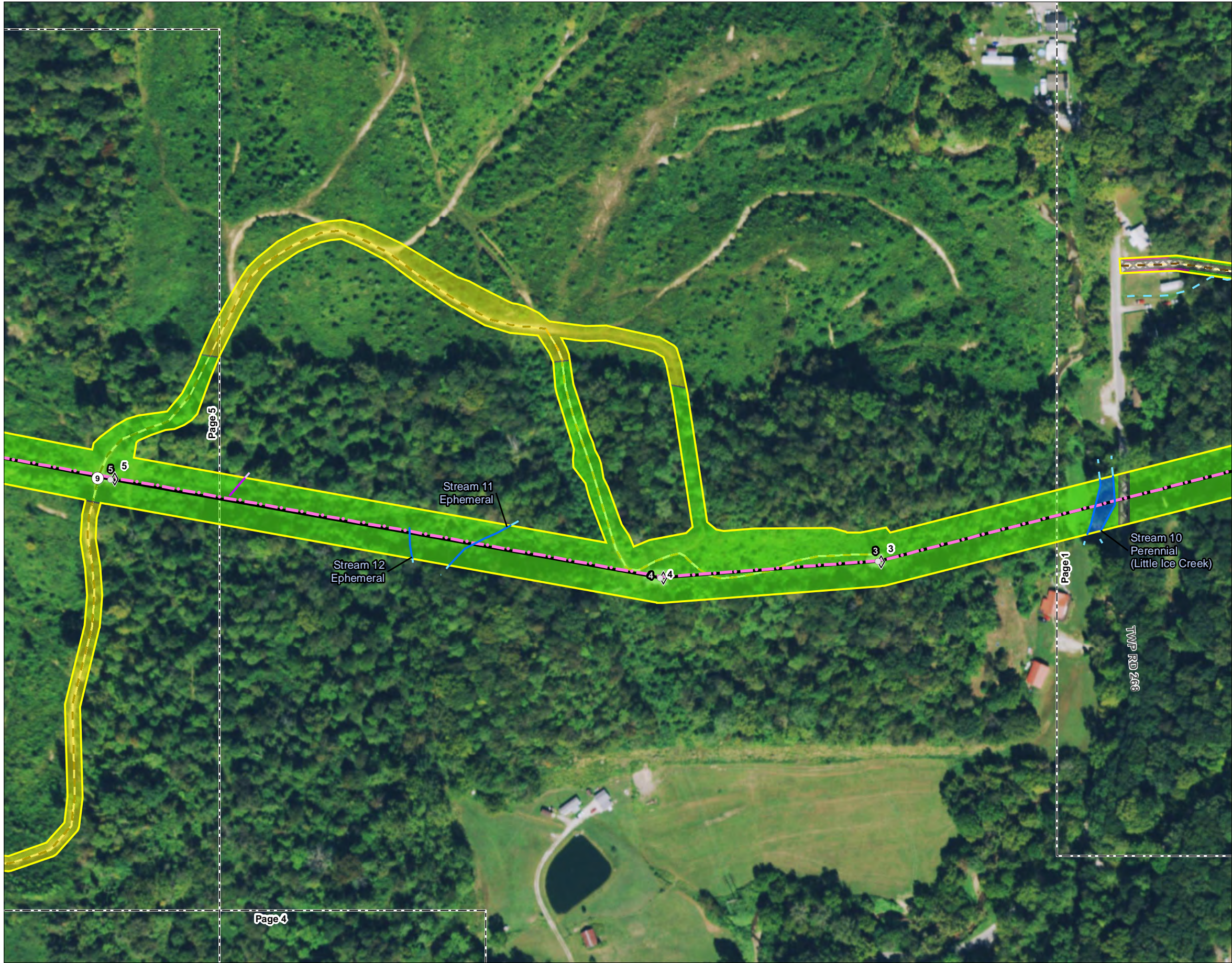


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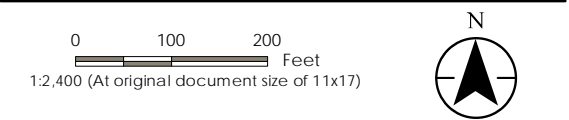
Title
Habitat Assessment Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

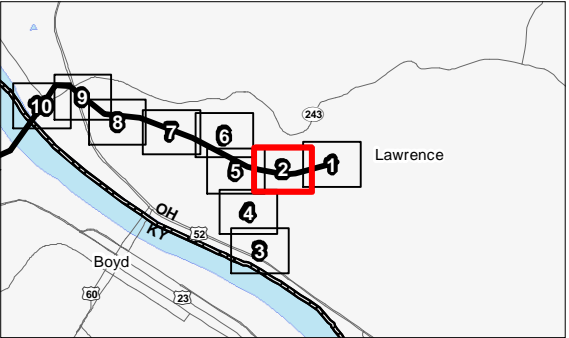
Project Location
Lawrence County, Ohio

193707276

Prepared by J.L.H. on 2020-10-22
Technical Review by A.J.K. on 2021-02-11
Independent Review by D.J.G. on 2021-02-11



- Legend
- | | |
|-------------------------------------|---|
| Existing Structure | Field Delineated Emergent Wetland |
| Proposed Structure | Field Delineated Forested Wetland |
| Existing 138 kV Transmission Line | Field Delineated Scrub-Shrub Wetland |
| Proposed 138 kV Transmission Line | Approximate Wetland |
| Existing Access Road | Habitat Area |
| New Access Road | Early Successional Deciduous Forest |
| Project Area | Mixed Early Successional/Second Growth Deciduous Forest |
| Photo Location | Old Field |
| Existing Culvert | Pasture |
| Spring Location | Maintained Lawn |
| Upland Drainage Feature | Existing ATV Trail |
| Approximate Upland Drainage Feature | Industrial |
| Field Delineated Waterway | Existing Railroad |
| Approximate Waterway | Existing Paved Roadway |
| Field Delineated Waterway Area | Existing Gravel Roadway |



Notes

- Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
- Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
- Orthophotography: 2019 NAIP

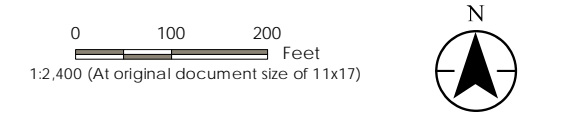




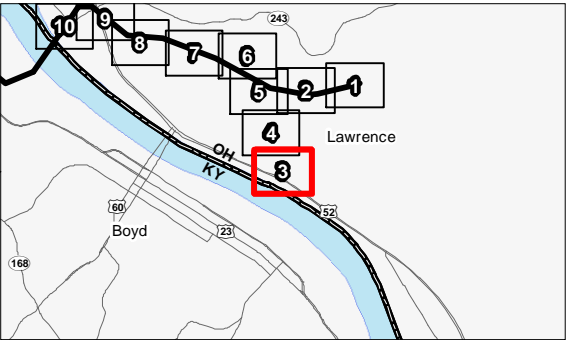
Figure No.
3
Title
Habitat Assessment Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio
193707276
Prepared by JLH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend**
- | | |
|-------------------------------------|---|
| Existing Structure | Field Delineated Emergent Wetland |
| Proposed Structure | Field Delineated Forested Wetland |
| Existing 138 kV Transmission Line | Field Delineated Scrub-Shrub Wetland |
| Proposed 138 kV Transmission Line | Approximate Wetland |
| Existing Access Road | Habitat Area |
| New Access Road | Early Successional Deciduous Forest |
| Project Area | Mixed Early Successional/Second Growth Deciduous Forest |
| Photo Location | Old Field |
| Existing Culvert | Pasture |
| Spring Location | Maintained Lawn |
| Upland Drainage Feature | Existing ATV Trail |
| Approximate Upland Drainage Feature | Industrial |
| Field Delineated Waterway | Existing Railroad |
| Approximate Waterway | Existing Paved Roadway |
| Field Delineated Waterway Area | Existing Gravel Roadway |



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
3. Orthophotography: 2019 NAIP



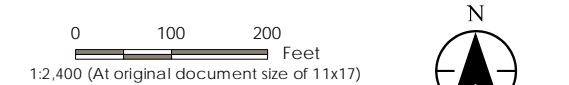
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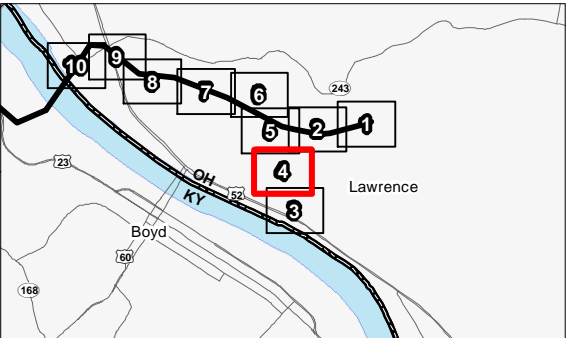
Figure No.
3
Title
Habitat Assessment Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellevue Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio
193707276
Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



Legend	
Existing Structure	Field Delineated Emergent Wetland
Proposed Structure	Field Delineated Forested Wetland
Existing 138 kV Transmission Line	Field Delineated Scrub-Shrub Wetland
Proposed 138 kV Transmission Line	Approximate Wetland
Existing Access Road	Habitat Area
New Access Road	Early Successional Deciduous Forest
Project Area	Mixed Early Successional/Second Growth Deciduous Forest
Photo Location	Old Field
Existing Culvert	Pasture
Spring Location	Maintained Lawn
Upland Drainage Feature	Existing ATV Trail
Approximate Upland Drainage Feature	Industrial
Field Delineated Waterway	Existing Railroad
Approximate Waterway	Existing Paved Roadway
Field Delineated Waterway Area	Existing Gravel Roadway



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
3. Orthophotography: 2019 NAIP



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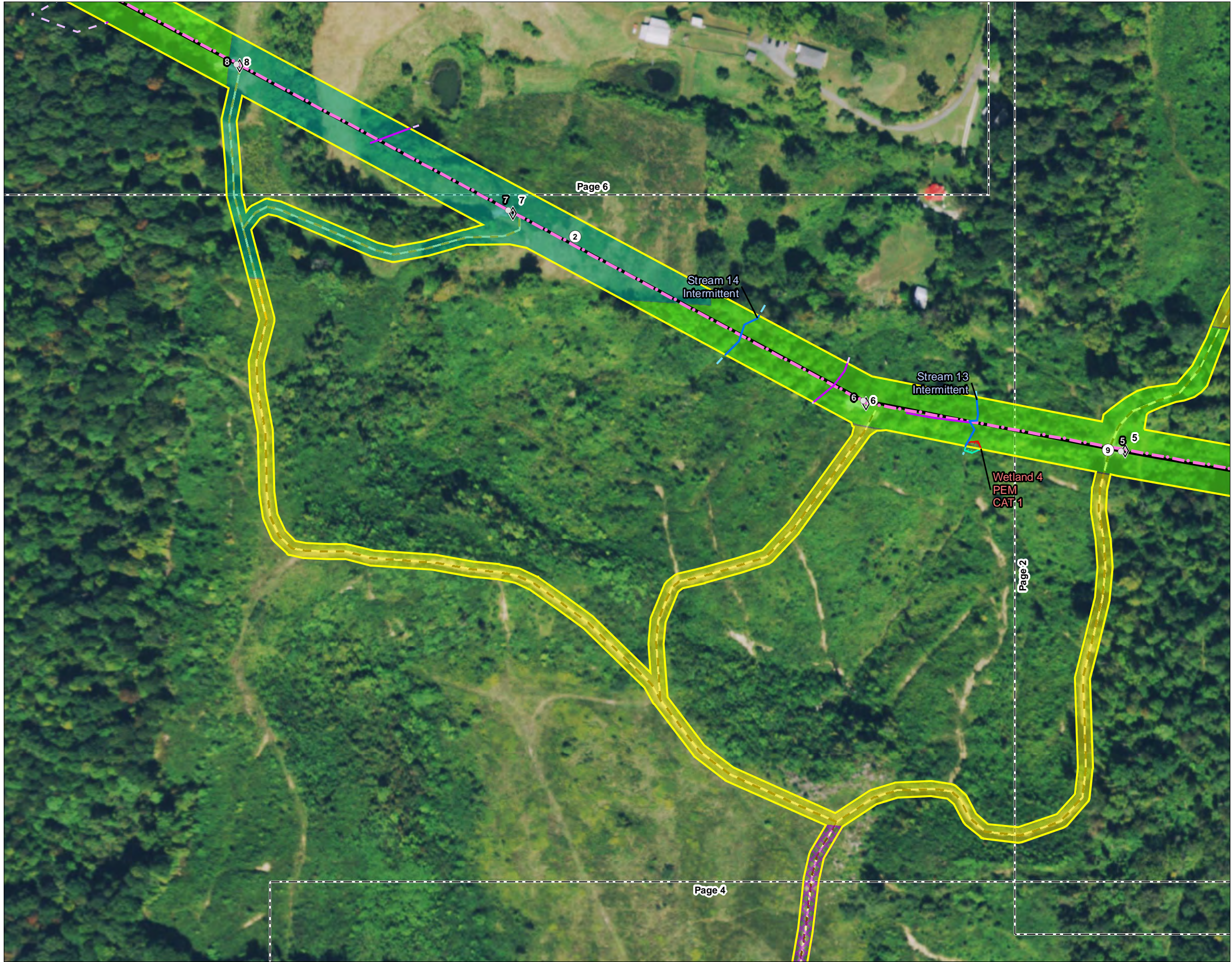


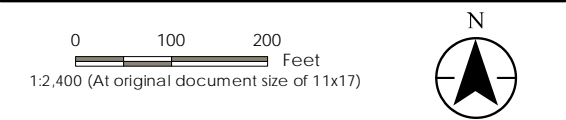
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Title
Habitat Assessment Map

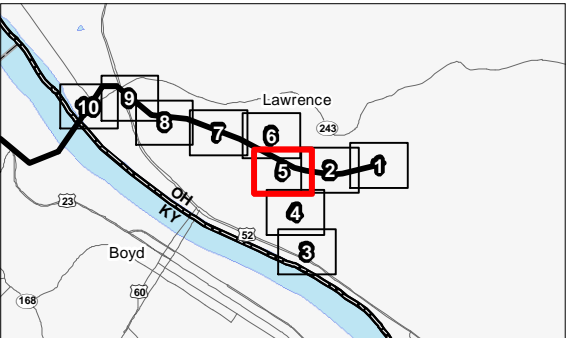
Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio

193707276
Prepared by JLH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend
- | | |
|-------------------------------------|---|
| Existing Structure | Field Delineated Emergent Wetland |
| Proposed Structure | Field Delineated Forested Wetland |
| Existing 138 kV Transmission Line | Field Delineated Scrub-Shrub Wetland |
| Proposed 138 kV Transmission Line | Approximate Wetland |
| Existing Access Road | Habitat Area |
| New Access Road | Early Successional Deciduous Forest |
| Project Area | Mixed Early Successional/Second Growth Deciduous Forest |
| Photo Location | Old Field |
| Existing Culvert | Pasture |
| Spring Location | Maintained Lawn |
| Upland Drainage Feature | Existing ATV Trail |
| Approximate Upland Drainage Feature | Industrial |
| Field Delineated Waterway | Existing Railroad |
| Approximate Waterway | Existing Paved Roadway |
| Field Delineated Waterway Area | Existing Gravel Roadway |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
3. Orthophotography: 2019 NAIP

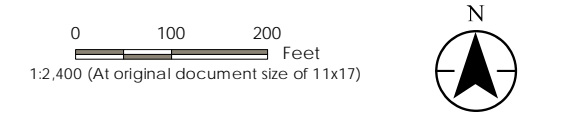




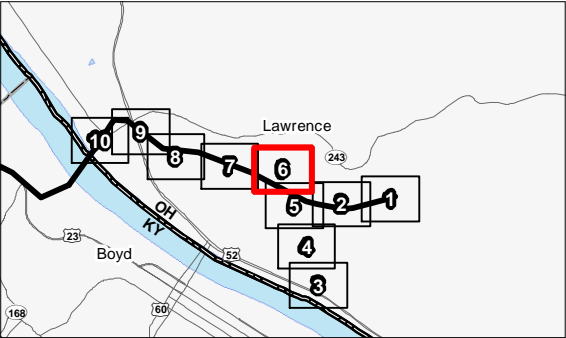
Figure No.
3
Title
Habitat Assessment Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio
193707276
Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend**
- | | |
|-------------------------------------|---|
| ● Existing Structure | Field Delineated Emergent Wetland |
| ◇ Proposed Structure | Field Delineated Forested Wetland |
| Existing 138 kV Transmission Line | Field Delineated Scrub-Shrub Wetland |
| Proposed 138 kV Transmission Line | Approximate Wetland |
| Existing Access Road | Habitat Area |
| New Access Road | Early Successional Deciduous Forest |
| Project Area | Mixed Early Successional/Second Growth Deciduous Forest |
| ○ Photo Location | Old Field |
| △ Existing Culvert | Pasture |
| ● Spring Location | Maintained Lawn |
| Upland Drainage Feature | Existing ATV Trail |
| Approximate Upland Drainage Feature | Industrial |
| Field Delineated Waterway | Existing Railroad |
| Approximate Waterway | Existing Paved Roadway |
| Field Delineated Waterway Area | Existing Gravel Roadway |



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
3. Orthophotography: 2019 NAIP



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Figure No.
3

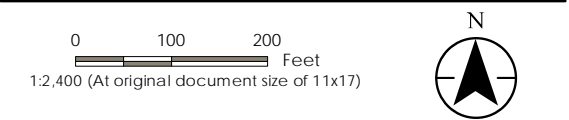
Title
Habitat Assessment Map

Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

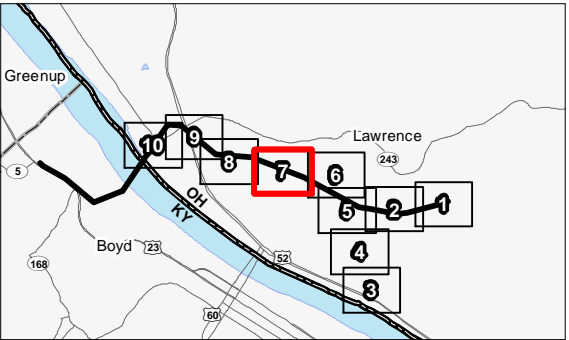
Project Location
Lawrence County, Ohio

193707276

Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend
- | | |
|-------------------------------------|---|
| Existing Structure | Field Delineated Emergent Wetland |
| Proposed Structure | Field Delineated Forested Wetland |
| Existing 138 kV Transmission Line | Field Delineated Scrub-Shrub Wetland |
| Proposed 138 kV Transmission Line | Approximate Wetland |
| Existing Access Road | Habitat Area |
| New Access Road | Early Successional Deciduous Forest |
| Project Area | Mixed Early Successional/Second Growth Deciduous Forest |
| Photo Location | Old Field |
| Existing Culvert | Pasture |
| Spring Location | Maintained Lawn |
| Upland Drainage Feature | Existing ATV Trail |
| Approximate Upland Drainage Feature | Industrial |
| Field Delineated Waterway | Existing Railroad |
| Approximate Waterway | Existing Paved Roadway |
| Field Delineated Waterway Area | Existing Gravel Roadway |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
3. Orthophotography: 2019 NAIP



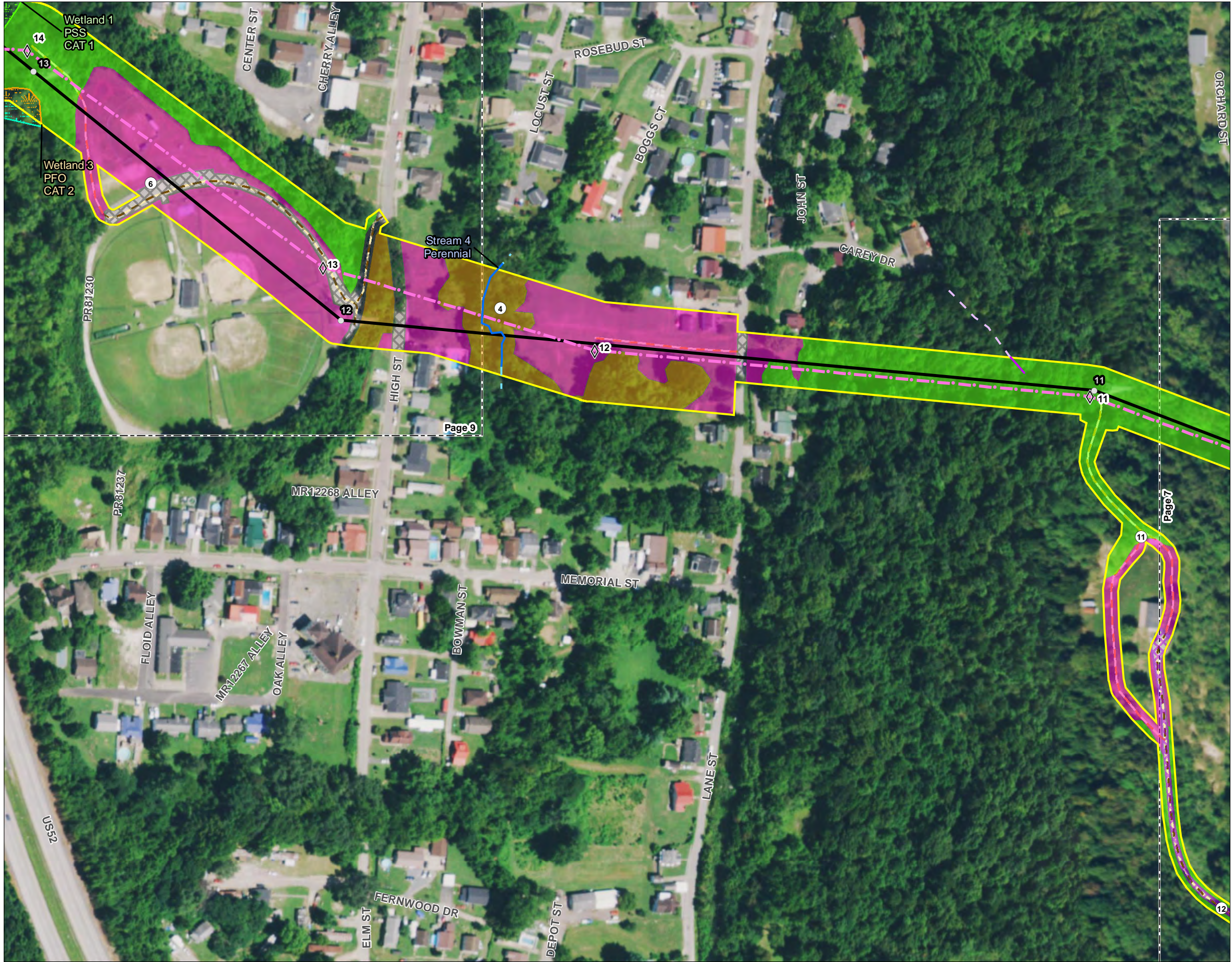
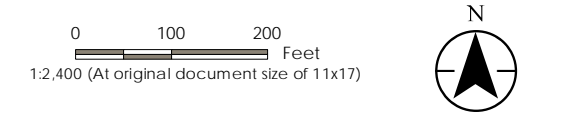
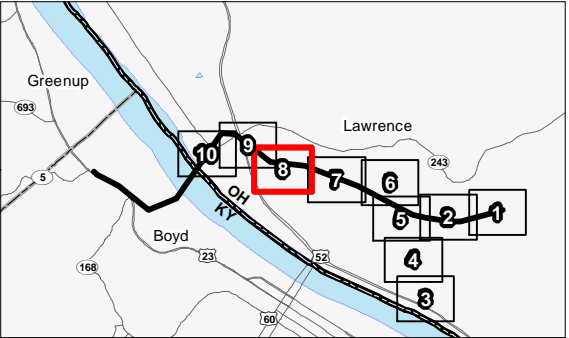


Figure No. 3
Title: Habitat Assessment Map

Client/Project: AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Project Location: Lawrence County, Ohio
Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11
193707276



- Legend**
- Existing Structure
 - Proposed Structure
 - Existing 138 kV Transmission Line
 - Proposed 138 kV Transmission Line
 - Existing Access Road
 - New Access Road
 - Project Area
 - Photo Location
 - Existing Culvert
 - Spring Location
 - Upland Drainage Feature
 - Approximate Upland Drainage Feature
 - Field Delineated Waterway
 - Approximate Waterway
 - Field Delineated Waterway Area
 - Field Delineated Emergent Wetland
 - Field Delineated Forested Wetland
 - Field Delineated Scrub-Shrub Wetland
 - Approximate Wetland
 - Habitat Area
 - Early Successional Deciduous Forest
 - Mixed Early Successional/Second Growth Deciduous Forest
 - Old Field
 - Pasture
 - Maintained Lawn
 - Existing ATV Trail
 - Industrial
 - Existing Railroad
 - Existing Paved Roadway
 - Existing Gravel Roadway



Notes:
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
3. Orthophotography: 2019 NAIP



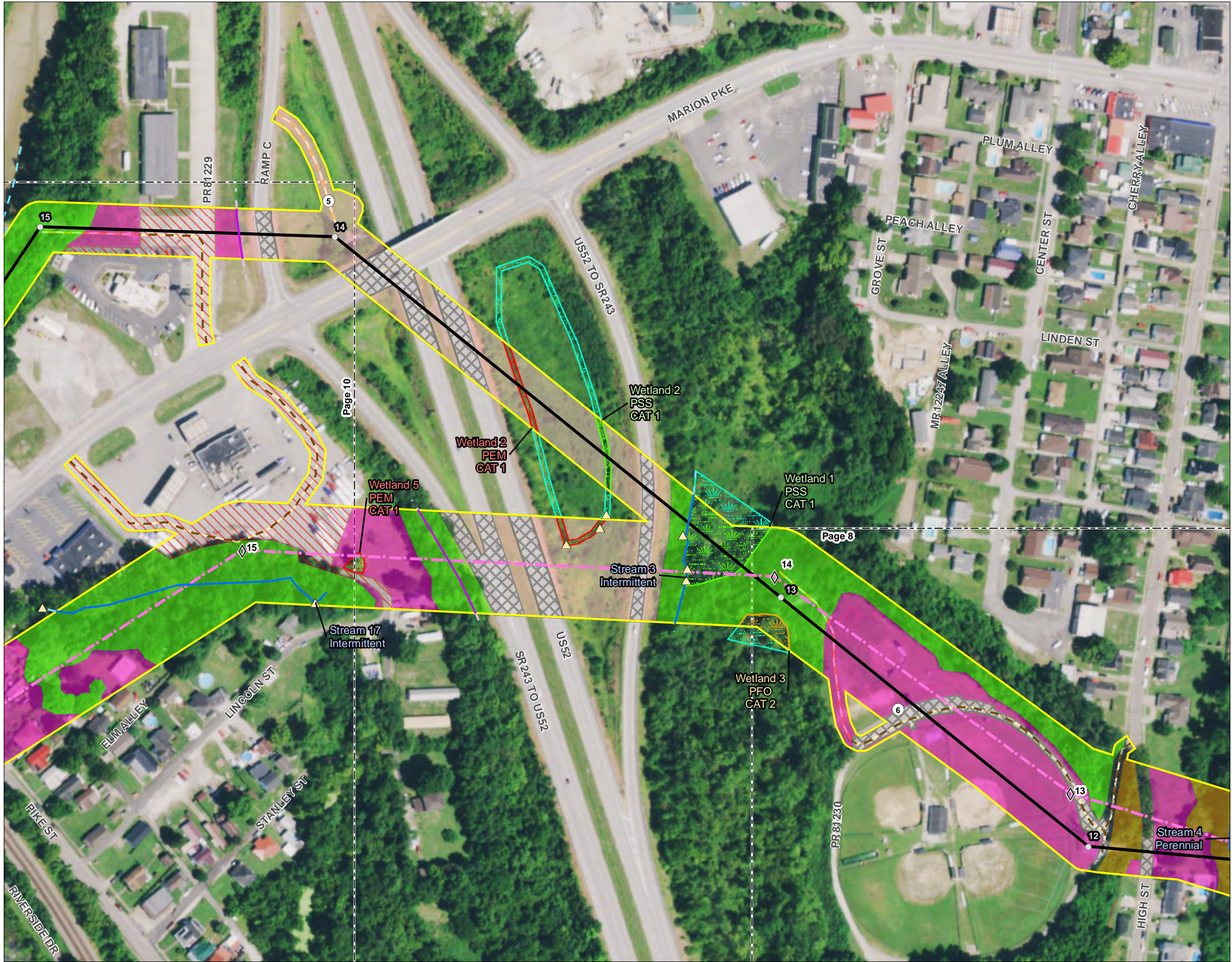
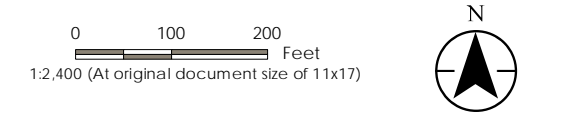


Figure No.
3
Title
Habitat Assessment Map

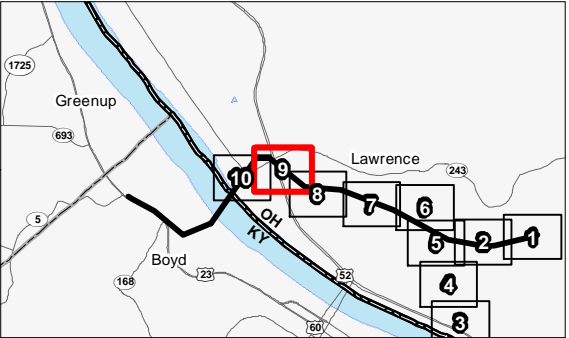
Client/Project
AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line
Rebuild Project

Project Location
Lawrence County, Ohio

193707276
Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend
- Existing Structure
 - Proposed Structure
 - Existing 138 kV Transmission Line
 - Proposed 138 kV Transmission Line
 - Existing Access Road
 - New Access Road
 - Photo Location
 - Existing Culvert
 - Spring Location
 - Upland Drainage Feature
 - Approximate Upland Drainage Feature
 - Field Delineated Waterway
 - Approximate Waterway
 - Field Delineated Waterway Area
 - Field Delineated Emergent Wetland
 - Field Delineated Forested Wetland
 - Field Delineated Scrub-Shrub Wetland
 - Approximate Wetland
 - Habitat Area
 - Early Successional Deciduous Forest
 - Mixed Early Successional/Second Growth Deciduous Forest
 - Old Field
 - Pasture
 - Maintained Lawn
 - Existing ATV Trail
 - Industrial
 - Existing Railroad
 - Existing Paved Roadway
 - Existing Gravel Roadway



Notes

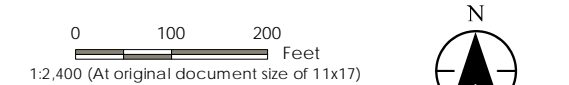
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- Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
- Orthophotography: 2019 NAIP



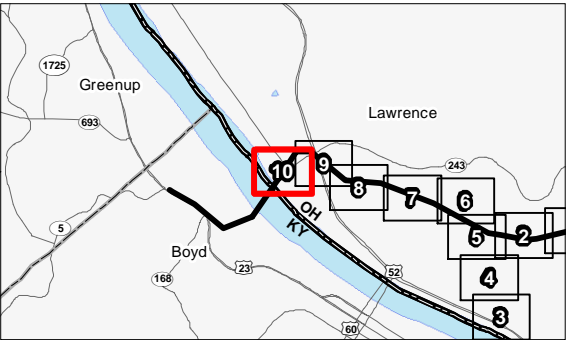


Figure No. 3
Title: Habitat Assessment Map

Client/Project: AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Project Location: Lawrence County, Ohio
Prepared by JH on 2020-10-22
Technical Review by AJK on 2021-02-11
Independent Review by DJG on 2021-02-11



- Legend**
- Existing Structure
 - Proposed Structure
 - Existing 138 kV Transmission Line
 - Proposed 138 kV Transmission Line
 - Existing Access Road
 - New Access Road
 - Project Area
 - Photo Location
 - Existing Culvert
 - Spring Location
 - Upland Drainage Feature
 - Approximate Upland Drainage Feature
 - Field Delineated Waterway
 - Approximate Waterway
 - Field Delineated Waterway Area
 - Field Delineated Emergent Wetland
 - Field Delineated Forested Wetland
 - Field Delineated Scrub-Shrub Wetland
 - Approximate Wetland
 - Habitat Area
 - Early Successional Deciduous Forest
 - Mixed Early Successional/Second Growth Deciduous Forest
 - Old Field
 - Pasture
 - Maintained Lawn
 - Existing ATV Trail
 - Industrial
 - Existing Railroad
 - Existing Paved Roadway
 - Existing Gravel Roadway



Notes

- Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
- Data Sources Include: Stantec, AEP, USGS, OGRIP, NADS
- Orthophotography: 2019 NAIP



Appendix B AGENCY CORRESPONDENCE

Godec, Daniel

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Thursday, December 05, 2019 8:14 AM
To: Godec, Daniel
Cc: nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject: Bellefonte Extension 138 kV Line Rebuild Project, Lawrence Co.



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



TAILS# 03E15000-2020-TA-0292

Dear Mr. Godec,

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

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

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

Should the proposed site contain trees ≥ 3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, we recommend that removal of any trees > 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule

(see <http://www.fws.gov/midwest/endangered/mammals/nleb/index.html>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

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

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

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

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

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice Ashfield", is written over a faint, larger signature that appears to read "John Kessler".

Patrice M. Ashfield
Field Office Supervisor

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



Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate

John Kessler, Chief

2045 Morse Road – Bldg. E-2

Columbus, OH 43229

Phone: (614) 265-6621

Fax: (614) 267-4764

January 8, 2020

Dan Godec
Stantec
1500 Lake Shore Drive Suite 100
Columbus OH 43204-3800

Re: 19-1008; Bellefonte Extension 138 kV Line Rebuild Project

Project: The Project involves rebuilding approximately 3.6 miles of existing 138 kV electric transmission line in Ohio and approximately 1.4 miles of existing 138 kV electric transmission line in Kentucky.

Location: The proposed project is located in Perry Township, Lawrence 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 records at or within a one-mile radius of the project area:

Maypop (*Passiflora incarnata*), T
Gray beard-tongue (*Penstemon canescens*), T
Blue scorpion-weed (*Phacelia covillei*), E
Wartyback (*Cyclonaias nodulata*), E
Butterfly (*Ellipsaria lineolata*), E
Elephant-ear (*Elliptio crassidens*), E
Black sandshell (*Ligumia recta*), T
Washboard (*Megaloniais nervosa*), E
Threehorn wartyback (*Obliquaria reflexa*), T
Ohio pigtoe (*Pleurobema cordatum*), E
Ebonyshell (*Reginaia ebenus*), E
Channel darter (*Percina copelandi*), T
River darter (*Percina shumardi*), T
Green salamander (*Aneides aeneus*), E
Little Ice Creek Conservation Site

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

A Conservation Site is an area deemed by the Natural Heritage Database to be a high-quality natural area not currently under formal protection. It may, for example, harbor one or more rare species, be an outstanding example of a plant community or have geologically significant features, etc. These sites may be in private ownership and our listing of them does not imply permission for access.

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

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

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

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

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

The project is within the range of the sheepnose (*Plethobasus cyphus*), a state endangered and federally endangered mussel, the fanshell (*Cyprogenia stegaria*), a state endangered and federally endangered mussel, the pink mucket (*Lampsilis orbiculata*), a state endangered and federally endangered mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federally

endangered mussel, the ebonyshell (*Fusconaia ebenus*), a state endangered mussel, the elephant-ear (*Elliptio crassidens*), a state endangered mussel, the washboard (*Megalonaias nervosa*), a state endangered mussel, the monkeyface (*Quadrula metanevra*), a state endangered mussel, the little spectaclecase (*Villosa lienosa*), a state endangered mussel, the Ohio pigtoe (*Pleurobema cordatum*), a state endangered mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, and the black sandshell (*Ligumia recta*), a state threatened mussel. This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2018), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2018) can be found at: <http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf>

The project is within the range of the goldeye (*Hiodon alosoides*), a state endangered fish, the shoal chub (*Macrhybopsis hyostoma*), a state endangered fish, the shovelnose sturgeon (*Scaphirhynchus platyrhynchus*), a state endangered fish, the channel darter (*Percina copelandi*), a state threatened fish, and the river darter (*Percina shumardi*), a state threatened fish. The DOW recommends no in-water work in the Ohio River from March 15 through June 30, and in other perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species, utilizing dry slopes and rocky outcrops. In addition to using wooded areas, the timber rattlesnake utilizes sunlit gaps in the canopy for basking and deep rock crevices for overwintering. Due to the location, this project is not likely to impact this species.

The project is within the range of the green salamander (*Aneides aeneus*), a state endangered amphibian. This species inhabits the deep moist cracks of rock cliffs. Due to the location, and the type of work proposed, this project is not likely to impact this species.

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

The project is within the range of the mud salamander (*Pseudotriton montanus*), a state threatened species. Due to the location, and the type of work proposed, this project is not likely to impact this species.

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

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

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

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

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

Mike Pettegrew
Environmental Services Administrator (Acting)

Appendix C REPRESENTATIVE PHOTOGRAPHS

C.1 WETLAND AND WATERBODY PHOTOGRAPHS

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 1. View of Stream 1 (Ohio River). Photograph taken facing upstream/southeast.



Photo Location 1. View of Stream 1 (Ohio River). Photograph taken facing downstream/northwest.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 1. View of substrate of Stream 1 (Ohio River).



Photo Location 2. View of Stream 2 (Ice Creek). Photograph taken facing upstream/north.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 2. View of Stream 2 (Ice Creek). Photograph taken facing downstream/south.



Photo Location 2. View of substrate of Stream 2 (Ice Creek).

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 3. View of Stream 3. Photograph taken facing upstream/south.



Photo Location 3. View of Stream 3. Photograph taken facing downstream/north.



Photo Location 3. View of the substrate of Stream 3.



Photo Location 4. View of Stream 4. Photograph taken facing upstream/north.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 4. View of Stream 4. Photograph taken facing downstream/south.



Photo Location 4. View of substrate of Stream 4.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 5. View of Stream 5. Photograph taken facing upstream/southwest.



Photo Location 5. View of Stream 5. Photograph taken facing downstream/northeast.



Photo Location 5. View of substrate of Stream 5.



Photo Location 6. View of Stream 6. Photograph taken facing upstream/southwest.



Photo Location 6. View of Stream 6. Photograph taken facing downstream/northeast.



Photo Location 6. View of substrate of Stream 6.



Photo Location 7. View of Stream 7. Photograph taken facing upstream/south.



Photo Location 7. View of Stream 7. Photograph taken facing downstream/north.



Photo Location 7. View of substrate of Stream 7.



Photo Location 8. View of Stream 8. Photograph taken facing upstream/southwest.



Photo Location 8. View of Stream 8. Photograph taken facing downstream/northeast.



Photo Location 8. View of substrate of Stream 8.



Photo Location 9. View of Stream 9. Photograph taken facing upstream/south.



Photo Location 9. View of Stream 9. Photograph taken facing downstream/north.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 9. View of substrate of Stream 9.



Photo Location 10. View of Stream 10 (Little Ice Creek). Photograph taken facing upstream/south.



Photo Location 10. View of Stream 10 (Little Ice Creek). Photograph taken facing downstream/north.



Photo Location 10. View of substrate of Stream 10 (Little Ice Creek).

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 11. View of Stream 11. Photograph taken facing upstream/northeast.



Photo Location 11. View of Stream 11. Photograph taken facing downstream/southwest.



Photo Location 11. View of substrates of Stream 11.



Photo Location 12. View of Stream 12. Photograph taken facing upstream/north.



Photo Location 12. View of Stream 12. Photograph taken facing downstream/south.



Photo Location 12. View of substrate of Stream 12.



Photo Location 13. View of Stream 13. Photograph taken facing upstream/south.



Photo Location 13. View of Stream 13. Photograph taken facing downstream/north.



Photo Location 13. View of substrate of Stream 13.



Photo Location 14. View of Stream 14. Photograph taken facing upstream/south.



Photo Location 14. View of Stream 14. Photograph taken facing downstream/north.



Photo Location 14. View of substrate of Stream 14.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 15. View of Stream 15. Photograph taken facing upstream/south.



Photo Location 15. View of Stream 15. Photograph taken facing downstream/north.



Photo Location 15. View of substrate of Stream 15.



Photo Location 16. View of Stream 16. Photograph taken facing upstream/south.



Photo Location 16. View of Stream 16. Photograph taken facing downstream/north.



Photo Location 16. View of substrate of Stream 16.



Photo Location 17. View of Wetland 1 at wetland determination sample point SP01. Photograph taken facing north.



Photo Location 17. View of Wetland 1 at wetland determination sample point SP01. Photograph taken facing east.



Photo Location 17. View of Wetland 1 at wetland determination sample point SP01. Photograph taken facing south.



Photo Location 17. View of Wetland 1 at wetland determination sample point SP01. Photograph taken facing west.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 17. View of Wetland 1 soil profile at wetland determination sample point SP01.



Photo Location 18. View of upland (mixed early successional/second growth deciduous forest habitat) at wetland determination sample point SP02.
Photograph taken facing east.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 18. View of upland (mixed early successional/second growth deciduous forest habitat) at wetland determination sample point SP02.
Photograph taken facing west.



Photo Location 19. View of palustrine emergent (PEM) portion of Wetland 2 at wetland determination sample point SP03. Photograph taken facing north.



Photo Location 19. View of PEM portion of Wetland 2 at wetland determination sample point SP03. Photograph taken facing east.



Photo Location 19. View of PEM portion of Wetland 2 at wetland determination sample point SP03. Photograph taken facing south.



Photo Location 19. View of PEM portion of Wetland 2 at wetland determination sample point SP03. Photograph taken facing west.



Photo Location 19. View of Wetland 2 soil profile at wetland determination sample point SP03.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 20. View of upland (old field habitat) at wetland determination sample point SP04. Photograph taken facing east.



Photo Location 20. View of upland (old field habitat) at wetland determination sample point SP04. Photograph taken facing east.



Photo Location 21. View of palustrine scrub-shrub (PSS) portion of Wetland 2 at wetland determination sample point SP05. Photograph taken facing north.



Photo Location 21. View of PSS portion of Wetland 2 at wetland determination sample point SP05. Photograph taken facing east.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 21. View of PSS portion of Wetland 2 at wetland determination sample point SP05. Photograph taken facing south.



Photo Location 21. View of PSS portion of Wetland 2 at wetland determination sample point SP05. Photograph taken facing west.



Photo Location 21. View of Wetland 2 soil profile of at wetland determination sample point SP05.



Photo Location 22. View of Wetland 3 at wetland determination sample point SP06. Photograph taken facing north.



Photo Location 22. View of Wetland 3 at wetland determination sample point SP06. Photograph taken facing east.



Photo Location 22. View of Wetland 3 at wetland determination sample point SP06. Photograph taken facing south.



Photo Location 22. View of Wetland 3 at wetland determination sample point SP06. Photograph taken facing west.



Photo Location 22. View of Wetland 3 soil profile at wetland determination sample point SP06.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 23. View of upland (mixed early successional/second growth deciduous forest habitat) at wetland determination sample point SP07.
Photograph taken facing east.



Photo Location 23. View of upland (mixed early successional/second growth deciduous forest habitat) at wetland determination sample point SP07.
Photograph taken facing west.



Photo Location 24. View of Wetland 4 at wetland determination sample point SP08. Photograph taken facing north.



Photo Location 24. View of Wetland 4 at wetland determination sample point SP08. Photograph taken facing east

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 24. View of Wetland 4 at wetland determination sample point SP08. Photograph taken facing south



Photo Location 24. View of Wetland 4 at wetland determination sample point SP08. Photograph taken facing west.



Photo Location 24. View of Wetland 4 soil profile at wetland determination sample point SP08.



Photo Location 25. View of upland (old field habitat) at wetland determination sample point SP07. Photograph taken facing east.



Photo Location 25. View of upland (old field habitat) at wetland determination sample point SP07. Photograph taken facing west.



Photo Location 26. View of upland (maintained lawn habitat) at wetland determination sample point SP10 within mapped National Wetlands Inventory (NWI) PUBGh feature. Photograph taken facing north.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 26. View of upland (maintained lawn habitat) at wetland determination sample point SP10 within mapped NWI PUBGh feature.
Photograph taken facing east.



Photo Location 26. View of upland (maintained lawn habitat) at wetland determination sample point SP10 within mapped NWI PUBGh feature.
Photograph taken facing south.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 27. View of Stream 17. Photograph taken facing upstream/northeast.



Photo Location 27. View of Stream 17. Photograph taken facing downstream/southwest.



Photo Location 27. View of substrates of Stream 17.



Photo Location 28. View of Stream 18. Photograph taken facing upstream/east.



Photo Location 28. View of Stream 18. Photograph taken facing upstream/west.



Photo Location 28. View of substrates of Stream 18.



Photo Location 29. View of Wetland 5 at wetland determination sample point SP11. Photograph taken facing north.



Photo Location 29. View of Wetland 5 at wetland determination sample point SP11. Photograph taken facing east.



Photo Location 29. View of Wetland 5 at wetland determination sample point SP11. Photograph taken facing south.



Photo Location 29. View of Wetland 5 at wetland determination sample point SP11. Photograph taken facing west.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 29. View of Wetland 5 soil profile at wetland determination sample point SP11.



Photo Location 30. View of upland (maintained lawn habitat) at wetland determination sample point SP12. Photograph taken facing west.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 30. View of upland (maintained lawn habitat) at wetland determination sample point SP12. Photograph taken facing south.



Photo Location 31. View of Wetland 6 at wetland determination sample point SP13. Photograph taken facing north.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 31. View of Wetland 6 at wetland determination sample point SP13. Photograph taken facing east.



Photo Location 31. View of Wetland 6 at wetland determination sample point SP13. Photograph taken facing south.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 31. View of Wetland 6 at wetland determination sample point SP13. Photograph taken facing west.



Photo Location 31. View of Wetland 6 soil profile at wetland determination sample point SP13.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 32. View of upland (maintained lawn habitat) at wetland determination sample point SP14. Photograph taken facing north.



Photo Location 32. View of upland (maintained lawn habitat) at wetland determination sample point SP14. Photograph taken facing west.

C.2 HABITAT PHOTOGRAPHS

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 1. Representative view of early successional deciduous forest habitat within the Project area. Photograph taken facing east.



Photo Location 2. Representative view of pasture habitat within the Project area. Photograph taken facing north.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 3. Representative view of maintained lawn habitat within the Project area.
Photograph taken facing north.

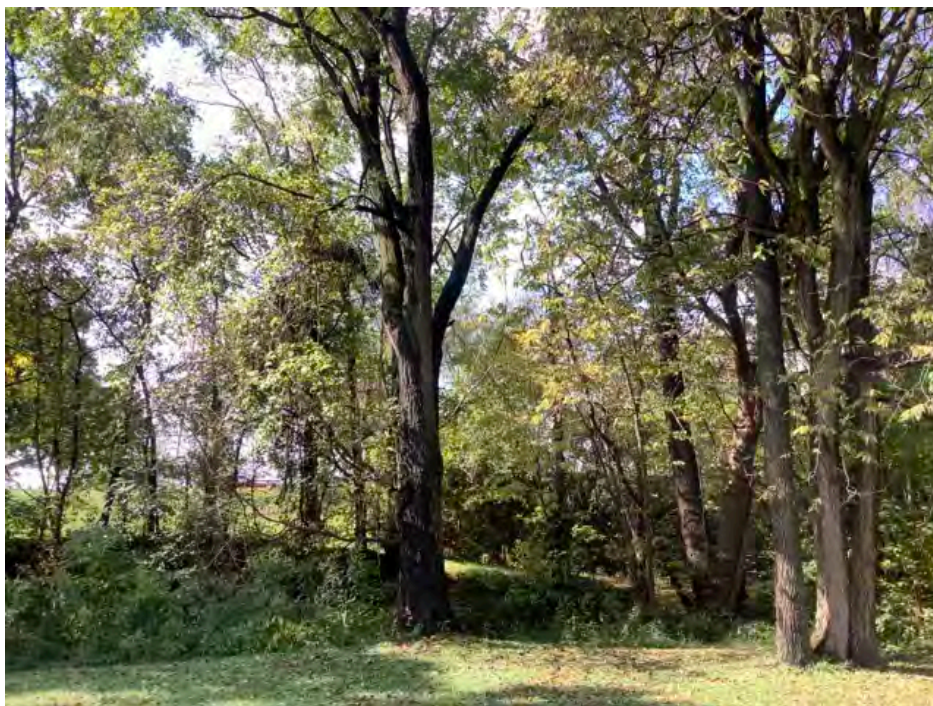


Photo Location 4. Representative view of mixed early successional/second growth deciduous forest habitat within the Project area. Photograph taken facing east.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 5. Representative view of old field habitat within the Project area. Photograph taken facing east.



Photo Location 6. Representative view of maintained lawn habitat and existing roadway within the Project area. Photograph taken facing east.

AEP Ohio Transmission Company, Inc.
Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 7. Representative view of existing gravel roadway within the Project area.
Photograph taken facing northwest.



Photo Location 8. Representative view of existing ATV trail within the Project area. Photograph
taken facing northwest.

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Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 9. Representative view of existing ATV trail within the Project area. Photograph taken facing south.



Photo Location 10. Representative view of existing gravel roadway within the Project area. Photograph taken facing south.

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Lawrence County, Ohio



Photo Location 11. Representative view of maintained lawn habitat within the Project area.
Photograph taken facing south.



Photo Location 11. Representative view of early successional deciduous forest habitat within the Project area. Photograph taken facing north.

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Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 12. Representative view of existing gravel roadway within the Project area.
Photograph taken facing northwest.



Photo Location 13. Representative view of maintained lawn habitat and existing paved roadway within the Project area. Photograph taken facing west.

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Bellefonte Extension 138 kV Line Rebuild Project
Lawrence County, Ohio



Photo Location 14. Representative view of sandstone rock face within the Project area.
Photograph taken facing northeast.

Appendix D DATA FORMS

D.1 WETLAND DETERMINATION DATA FORMS

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/20/20
Applicant: AEP				County: Lawrence
Investigator #1: Aaron Kwolek		Investigator #2: Matt Denzler		State: Ohio
Soil Unit: Nolin silt loam, 0 to 3 percent slopes, occasionally floe		NWI/WWI Classification: PFO1A		Wetland ID: Wetland 1
Landform: Depression		Local Relief: Convex		Sample Point: SP01
Slope (%): 1	Latitude: 38.49894	Longitude: -82.648322	Datum: NAD83	Community ID: PSS
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --

SUMMARY OF FINDINGS			
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:			

HYDROLOGY			
Wetland Hydrology Indicators (Check here if indicators are not present): <input type="checkbox"/>			
<u>Primary:</u> <input checked="" type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery		<u>Secondary:</u> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input checked="" type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input checked="" type="checkbox"/> D5 - FAC-Neutral Test	

Field Observations:		Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 0.5 (in.)	
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 0 (in.)	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 0 (in.)	

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

SOILS	
Map Unit Name: Nolin silt loam, 0 to 3 percent slopes, occasionally Series D	Series Drainage Class:
Taxonomy (Subgroup):	

Taxonomy (Subgroup):											
Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix			Mottles				Texture (e.g. clay, sand, loam)	
			Color (Moist)		%	Color (Moist)		%	Type		Location
0	4	1	10YR	4/1	100	--	--	--	--	--	clay loam
4	16	2	10YR	5/2	90	5YR	4/6	10	C	M	clay loam
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input type="checkbox"/>				Indicators for Problematic Soils¹	
<input type="checkbox"/> A1 - Histosol	<input type="checkbox"/> S5 - Sandy Redox	<input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N, 147)	<input type="checkbox"/> A10 - 2cm Muck (MLRA 147)		
<input type="checkbox"/> A2 - Histic Epipedon	<input type="checkbox"/> S6 - Stripped Matrix	<input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136)	<input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148)		
<input type="checkbox"/> A3 - Black Histic	<input type="checkbox"/> S7 - Dark Surface	<input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147)	<input type="checkbox"/> TF12 - Very Shallow Dark Surface		
<input type="checkbox"/> A4 - Hydrogen Sulfide	<input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148)	<input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147)	Other (Explain in Remarks)		
<input type="checkbox"/> A5 - Stratified Layers	<input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148)				
<input type="checkbox"/> A10 - 2 cm Muck (LRR N)	<input type="checkbox"/> F2 - Loamy Gleyed Matrix				
<input type="checkbox"/> A11 - Depleted Below Dark Surface	<input checked="" type="checkbox"/> F3 - Depleted Matrix				
<input type="checkbox"/> A12 - Thick Dark Surface	<input type="checkbox"/> F6 - Redox Dark Surface				
<input type="checkbox"/> S1 - Sandy Muck Mineral (LRR N, MLRA 147, 148)	<input type="checkbox"/> F7 - Depleted Dark Surface				
<input type="checkbox"/> S4 - Sandy Gleyed Matrix	<input type="checkbox"/> F8 - Redox Depressions				

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed)	Type:	Depth:	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks:			

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 1** Sample Point **SP01**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind. Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--

Total Cover = **0**

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	<i>Ulmus rubra</i>	10	Y	FAC
2.	<i>Acer saccharinum</i>	15	Y	FACW
3.	<i>Platanus occidentalis</i>	12	Y	FACW
4.	<i>Rubus allegheniensis</i>	3	N	FACU
5.	<i>Acer negundo</i>	10	Y	FAC
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--

Total Cover = **50**

Herb Stratum (Plot size: 5 ft radius)

1.	<i>Phalaris arundinacea</i>	63	Y	FACW
2.	<i>Verbesina alternifolia</i>	10	N	FAC
3.	<i>Persicaria pensylvanica</i>	2	N	FACW
4.	<i>Symphotrichum pilosum</i>	10	N	FAC
5.	<i>Amphicarpaea bracteata</i>	3	N	FAC
6.	<i>Urtica dioica</i>	2	N	FACU
7.	<i>Epilobium coloratum</i>	3	N	FACW
8.	<i>Lythrum salicaria</i>	2	N	FACW
9.	<i>Commelina virginica</i>	3	N	FACW
10.	<i>Toxicodendron radicans</i>	2	N	FAC
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--

Total Cover = **100**

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--

Total Cover = **0**

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100.0%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

Multiply by:

OBL spp.	0	x 1 =	0
FACW spp.	100	x 2 =	200
FAC spp.	45	x 3 =	135
FACU spp.	5	x 4 =	20
UPL spp.	0	x 5 =	0

Total **150** (A) **355** (B)

Prevalence Index = B/A = **2.367**

Hydrophytic Vegetation Indicators:

- Yes ☒ No ☐ Rapid Test for Hydrophytic Vegetation
 Yes ☒ No ☐ Dominance Test is > 50%
 Yes ☒ No ☐ Prevalence Index is ≤ 3.0 *
 Yes ☐ No ☒ Morphological Adaptations (Explain) *
 Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☒ Yes ☐ No

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/20/20							
Applicant: AEP				County: Lawrence							
Investigator #1: Aaron Kwolek		Investigator #2: Matt Denzler		State: Ohio							
Soil Unit: Nolin silt loam, 0 to 3 percent slopes, occasionally floe		NW1/WWI Classification: N/A		Wetland ID: Wetland 1							
Landform: Rise		Local Relief: Concave		Sample Point: SP02							
Slope (%): 3		Latitude: 38.49883		Datum: NAD83							
Longitude: -82.648120				Community ID: UPL							
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1							
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N							
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --							
SUMMARY OF FINDINGS											
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No									
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Remarks:											
HYDROLOGY											
Wetland Hydrology Indicators (Check here if indicators are not present): <input type="checkbox"/>											
Primary:		Secondary:									
<input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery		<input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test							
Field Observations:			Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.)											
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.)											
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.)											
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A											
Remarks:											
SOILS											
Map Unit Name: Nolin silt loam, 0 to 3 percent slopes, occasionally floe Series: D											
Taxonomy (Subgroup):											
Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix		Color (Moist)		Mottles		Type	Location	Texture (e.g. clay, sand, loam)
			Color (Moist)	%	Color (Moist)	%					
0	1	1	10YR	2/1	100	--	--	--	--	--	silty clay
1	15	2	10YR	4/3	100	--	--	--	--	--	silty clay
15	16	3	10YR	5/6	98	10YR	6/8	2	C	M	silty clay
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input checked="" type="checkbox"/> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> 1 - Histosol <input type="checkbox"/> 2 - Histic Epipedon <input type="checkbox"/> 3 - Black Histic <input type="checkbox"/> 4 - Hydrogen Sulfide <input type="checkbox"/> 5 - Stratified Layers <input type="checkbox"/> 10 - 2 cm Muck (LRR N) <input type="checkbox"/> 11 - Depleted Below Dark Surface <input type="checkbox"/> 12 - Thick Dark Surface <input type="checkbox"/> 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> 4 - Sandy Gleyed Matrix </div> <div> <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions </div> <div> <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N) <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA) <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147) </div> <div> <input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks) </div> </div>											
Restrictive Layer (If Observed) Type: Depth:			Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
Remarks:											

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 1**

Sample Point **SP02**

VEGETATION (Species identified in all uppercase are non-native species.)																				
Tree Stratum (Plot size: 30 ft radius)																				
#	Species Name	% Cover	Dominant	Ind. Status																
1.	<i>Acer saccharinum</i>	10	Y	FACW																
2.	<i>Juglans nigra</i>	2	N	FACU																
3.	<i>Prunus serotina</i>	2	N	FACU																
4.	<i>Gleditsia triacanthos</i>	5	Y	FAC																
5.	--	--	--	--																
6.	--	--	--	--																
7.	--	--	--	--																
8.	--	--	--	--																
9.	--	--	--	--																
10.	--	--	--	--																
Total Cover =		19																		
Sapling/Shrub Stratum (Plot size: 15 ft radius)																				
1.	--	--	--	--																
2.	--	--	--	--																
3.	--	--	--	--																
4.	--	--	--	--																
5.	--	--	--	--																
6.	--	--	--	--																
7.	--	--	--	--																
8.	--	--	--	--																
9.	--	--	--	--																
10.	--	--	--	--																
Total Cover =		0																		
Herb Stratum (Plot size: 5 ft radius)																				
1.	<i>Elymus canadensis</i>	15	Y	FACU																
2.	<i>Amphicarpaea bracteata</i>	2	N	FAC																
3.	<i>Toxicodendron radicans</i>	2	N	FAC																
4.	<i>Oxalis stricta</i>	2	N	FACU																
5.	<i>Lonicera japonica</i>	10	N	FAC																
6.	<i>Boehmeria cylindrica</i>	25	Y	FACW																
7.	<i>Parthenocissus quinquefolia</i>	5	N	FACU																
8.	<i>Verbesina alternifolia</i>	20	Y	FAC																
9.	<i>Glyceria striata</i>	2	N	OBL																
10.	<i>Convolvulus equitans</i>	5	N	FACU																
11.	<i>Euonymus fortunei</i>	5	N	UPL																
12.	<i>Viola sororia</i>	5	N	FAC																
13.	--	--	--	--																
14.	--	--	--	--																
15.	--	--	--	--																
Total Cover =		98																		
Woody Vine Stratum (Plot size: 30 ft radius)																				
1.	--	--	--	--																
2.	--	--	--	--																
3.	--	--	--	--																
4.	--	--	--	--																
5.	--	--	--	--																
Total Cover =		0																		
Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)																				
Prevalence Index Worksheet <table style="width:100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL spp. <u>2</u></td> <td>x 1 = <u>2</u></td> </tr> <tr> <td>FACW spp. <u>35</u></td> <td>x 2 = <u>70</u></td> </tr> <tr> <td>FAC spp. <u>44</u></td> <td>x 3 = <u>132</u></td> </tr> <tr> <td>FACU spp. <u>31</u></td> <td>x 4 = <u>124</u></td> </tr> <tr> <td>UPL spp. <u>5</u></td> <td>x 5 = <u>25</u></td> </tr> <tr> <td>Total <u>117</u> (A)</td> <td><u>353</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.017</u></td> </tr> </table>					Total % Cover of:	Multiply by:	OBL spp. <u>2</u>	x 1 = <u>2</u>	FACW spp. <u>35</u>	x 2 = <u>70</u>	FAC spp. <u>44</u>	x 3 = <u>132</u>	FACU spp. <u>31</u>	x 4 = <u>124</u>	UPL spp. <u>5</u>	x 5 = <u>25</u>	Total <u>117</u> (A)	<u>353</u> (B)	Prevalence Index = B/A = <u>3.017</u>	
Total % Cover of:	Multiply by:																			
OBL spp. <u>2</u>	x 1 = <u>2</u>																			
FACW spp. <u>35</u>	x 2 = <u>70</u>																			
FAC spp. <u>44</u>	x 3 = <u>132</u>																			
FACU spp. <u>31</u>	x 4 = <u>124</u>																			
UPL spp. <u>5</u>	x 5 = <u>25</u>																			
Total <u>117</u> (A)	<u>353</u> (B)																			
Prevalence Index = B/A = <u>3.017</u>																				
Hydrophytic Vegetation Indicators: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Rapid Test for Hydrophytic Vegetation Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Dominance Test is > 50% Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 * Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Morphological Adaptations (Explain) * Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Problem Hydrophytic Vegetation (Explain) * * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall. Woody Vines - All woody vines greater than 3.28 ft. in height.																				
Hydrophytic Vegetation Present <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																				
Remarks:																				

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/20/20
Applicant: AEP				County: Lawrence
Investigator #1: Aaron Kwolek		Investigator #2: Matt Denzler		State: Ohio
Soil Unit: Nolin silt loam, 0 to 3 percent slopes, occasionally floe		NWI/WWI Classification: N/A		Wetland ID: Wetland 2
Landform: Depression		Local Relief: Concave		Sample Point: SP03
Slope (%): 1	Latitude: 38.49987	Longitude: -82.649678	Datum: NAD83	Community ID: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --

SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present) <input type="checkbox"/>		Secondary:
Primary: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery 	<ul style="list-style-type: none"> <input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks) 	<ul style="list-style-type: none"> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input checked="" type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input checked="" type="checkbox"/> D5 - FAC-Neutral Test

Field Observations: Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 3 (in.) Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 0 (in.) Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 0 (in.)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

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

Remarks:

SOILS

Map Unit Name: **Nolin silt loam, 0 to 3 percent slopes, occasionally Series D** Series/Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix			Mottles					Texture (e.g. clay, sand, loam)
			Color (Moist)		%	Color (Moist)		%	Type	Location	
0	1	1	10YR	2/1	100	--	--	--	--	--	muck
1	7	2	10YR	4/2	88	10YR	5/6	12	C	M	clay
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
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--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present) <input type="checkbox"/>		Indicators for Problematic Soils¹
<ul style="list-style-type: none"> <input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck (LRR N) <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> S4 - Sandy Gleyed Matrix 	<ul style="list-style-type: none"> <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions 	<ul style="list-style-type: none"> <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N, <input type="checkbox"/> <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA <input type="checkbox"/> <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147 <input type="checkbox"/> <input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface Other (Explain in Remarks)

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: rock/fill Depth: 7	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	---

Remarks:



WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Page 2 of 2

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project

Wetland ID: Wetland 2 Sample Point SP03

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind. Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		

Herb Stratum (Plot size: 5 ft radius)

1.	Lythrum salicaria	100	Y	FACW
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		100		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet

Total % Cover of:

Multiply by:

OBL spp.	0	x 1 =	0
FACW spp.	100	x 2 =	200
FAC spp.	0	x 3 =	0
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0

Total 100 (A) 200 (B)

Prevalence Index = B/A = 2.000

Hydrophytic Vegetation Indicators:

Yes ☒ No ☐ Rapid Test for Hydrophytic Vegetation

Yes ☒ No ☐ Dominance Test is > 50%

Yes ☒ No ☐ Prevalence Index is ≤ 3.0 *

Yes ☐ No ☒ Morphological Adaptations (Explain) *

Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☒ Yes ☐ No

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/20/20
Applicant: AEP				County: Lawrence
Investigator #1: Aaron Kwolek		Investigator #2: Matt Denzler		State: Ohio
Soil Unit: Nolin silt loam, 0 to 3 percent slopes, occasionally flo		NWI/WWI Classification: N/A		Wetland ID: Wetland 2
Landform: Rise		Local Relief: Convex		Sample Point: SP04
Slope (%): 1	Latitude: 38.49982	Longitude: -82.649597	Datum: NAD83	Community ID: UPL
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --

SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present): <input type="checkbox"/>		Secondary:
Primary: <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery	<input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test

Field Observations:		Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	

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

SOILS

Map Unit Name: Nolin silt loam, 0 to 3 percent slopes, occasionally flooded	Series Drainage Class:
--	------------------------

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix			Color (Moist)		Mottles		Type	Location
			Color	(Moist)	%			%			Texture (e.g. clay, sand, loam)
0	10	1	10YR	4/3	100	--	--	--	--	--	muck
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input type="checkbox"/>		Indicators for Problematic Soils¹
<input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck (LRR N) <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> S4 - Sandy Gleyed Matrix	<input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions	<input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N, <input type="checkbox"/> <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA <input type="checkbox"/> <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147) <input type="checkbox"/> <input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface Other (Explain in Remarks)

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed)	Type:	Depth:	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks:			

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 2** Sample Point **SP04**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)				
	Species Name	% Cover	Dominant	Ind. Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		
Sapling/Shrub Stratum (Plot size: 15 ft radius)				
1.	<i>Cercis canadensis</i>	5	Y	FACU
2.	<i>Rubus allegheniensis</i>	5	Y	FACU
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		10		
Herb Stratum (Plot size: 5 ft radius)				
1.	<i>Solidago canadensis</i>	85	Y	FACU
2.	<i>Symphotrichum pilosum</i>	10	N	FAC
3.	<i>Toxicodendron radicans</i>	10	N	FAC
4.	<i>Asclepias syriaca</i>	2	N	FACU
5.	<i>Lysimachia quadriflora</i>	2	N	FACW
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		109		
Woody Vine Stratum (Plot size: 30 ft radius)				
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet

Total % Cover of:	Multiply by:
OBL spp. <u>0</u>	x 1 = <u>0</u>
FACW spp. <u>2</u>	x 2 = <u>4</u>
FAC spp. <u>20</u>	x 3 = <u>60</u>
FACU spp. <u>97</u>	x 4 = <u>388</u>
UPL spp. <u>0</u>	x 5 = <u>0</u>
Total <u>119</u> (A)	<u>452</u> (B)
Prevalence Index = B/A = <u>3.798</u>	

Hydrophytic Vegetation Indicators:

Yes ☐ No ☒ Rapid Test for Hydrophytic Vegetation

Yes ☐ No ☒ Dominance Test is > 50%

Yes ☐ No ☒ Prevalence Index is ≤ 3.0 *

Yes ☐ No ☒ Morphological Adaptations (Explain) *

Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☒ No

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/20/20
Applicant: AEP				County: Lawrence
Investigator #1: Aaron Kwolek		Investigator #2: Matt Denzler		State: Ohio
Soil Unit: Nolin silt loam, 0 to 3 percent slopes, occasionally flo		NWI/WWI Classification: N/A		Wetland ID: Wetland 2
Landform: Depression		Local Relief: Concave		Sample Point: SP05
Slope (%): 1	Latitude: 38.49949	Longitude: -82.649074	Datum: NAD83	Community ID: PSS
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --

SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks:	

HYDROLOGY	
Wetland Hydrology Indicators (Check here if indicators are not present): <input type="checkbox"/>	
<u>Primary:</u> <input checked="" type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery	<u>Secondary:</u> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input checked="" type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input checked="" type="checkbox"/> D5 - FAC-Neutral Test

Field Observations:	
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 4 (in.)
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 0 (in.)
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 0 (in.)
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

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

SOILS	
Map Unit Name: Nolin silt loam, 0 to 3 percent slopes, occasionally flooded	Series Drainage Class:
Taxonomy (Subgroup):	

Taxonomy (Subgroup):											
Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix			Mottles					Texture (e.g. clay, sand, loam)
			Color (Moist)		%	Color (Moist)		%	Type	Location	
0	1	1	10YR	2/1	100	--	--	--	--	--	muck
1	6	2	10YR	5/1	90	10YR	5/6	10	C	M	clay
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input type="checkbox"/>		Indicators for Problematic Soils¹	
<input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck (LRR N) <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> S4 - Sandy Gleyed Matrix	<input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input checked="" type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions	<input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N) <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA) <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147)	<input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface Other (Explain in Remarks)

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: rock	Depth: 6	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks:		

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 2** Sample Point **SP05**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind. Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		
Sapling/Shrub Stratum (Plot size: 15 ft radius)				
1.	<i>Salix interior</i>	5	N	FACW
2.	<i>Cephalanthus occidentalis</i>	30	Y	OBL
3.	<i>Platanus occidentalis</i>	5	N	FACW
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		40		
Herb Stratum (Plot size: 5 ft radius)				
1.	<i>Lythrum salicaria</i>	60	Y	FACW
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		60		
Woody Vine Stratum (Plot size: 30 ft radius)				
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

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: **100.0%** (A/B)

Prevalence Index Worksheet

Total % Cover of:	Multiply by:
OBL spp. 30	x 1 = 30
FACW spp. 70	x 2 = 140
FAC spp. 0	x 3 = 0
FACU spp. 0	x 4 = 0
UPL spp. 0	x 5 = 0
Total 100 (A)	170 (B)
Prevalence Index = B/A = 1.700	

Hydrophytic Vegetation Indicators:

Yes ☒ No ☐ Rapid Test for Hydrophytic Vegetation
 Yes ☒ No ☐ Dominance Test is > 50%
 Yes ☒ No ☐ Prevalence Index is ≤ 3.0 *
 Yes ☐ No ☒ Morphological Adaptations (Explain) *
 Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☒ Yes ☐ No

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/20/20									
Applicant: AEP		Investigator #1: Aaron Kwolek		County: Lawrence									
Investigator #2: Matt Denzler		Investigator #2: Matt Denzler		State: Ohio									
Soil Unit: Nolin silt loam, 0 to 3 percent slopes, occasionally flooded		NW1/WW1 Classification: N/A		Wetland ID: Wetland 3									
Landform: Depression		Local Relief: Concave		Sample Point: SP06									
Slope (%): 1		Latitude: 38.49857		Community ID: PFO									
		Longitude: -82.647888		Datum: NAD83									
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1									
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N									
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --									
SUMMARY OF FINDINGS													
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											
Remarks:													
HYDROLOGY													
Wetland Hydrology Indicators (Check here if indicators are not present): <input type="checkbox"/>													
<table border="0" style="width:100%;"> <tr> <td style="width:50%; vertical-align: top;"> <u>Primary:</u> <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input checked="" type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery </td> <td style="width:50%; vertical-align: top;"> <input checked="" type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks) </td> </tr> </table>					<u>Primary:</u> <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input checked="" type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery	<input checked="" type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)							
<u>Primary:</u> <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input checked="" type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery	<input checked="" type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)												
<u>Secondary:</u> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input checked="" type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input checked="" type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input checked="" type="checkbox"/> D5 - FAC-Neutral Test													
<table border="0" style="width:100%;"> <tr> <td style="width:50%;"> Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) </td> <td style="width:50%; text-align: center; background-color: #f0f0f0;"> Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No </td> </tr> </table>					Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							
Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No												
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A													
Remarks:													
SOILS													
Map Unit Name: Nolin silt loam, 0 to 3 percent slopes, occasionally flooded Series Drainage Class:													
Taxonomy (Subgroup):													
Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)													
Top Depth	Bottom Depth	Horizon	Matrix		Color (Moist)		Mottles		Type	Location	Texture (e.g. clay, sand, loam)		
0	1	1	10YR	2/1	100	--	--	--	--	--	silty clay		
1	7	2	10YR	5/1	90	5YR	4/6	10	C	M	silty clay		
7	16	3	10YR	4/2	92	10YR	5/8	8	C	M	silty clay		
--	--	--	--	--	--	--	--	--	--	--	--		
--	--	--	--	--	--	--	--	--	--	--	--		
--	--	--	--	--	--	--	--	--	--	--	--		
--	--	--	--	--	--	--	--	--	--	--	--		
--	--	--	--	--	--	--	--	--	--	--	--		
--	--	--	--	--	--	--	--	--	--	--	--		
--	--	--	--	--	--	--	--	--	--	--	--		
--	--	--	--	--	--	--	--	--	--	--	--		
NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input type="checkbox"/> <table border="0" style="width:100%;"> <tr> <td style="width:50%; vertical-align: top;"> <input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck (LRR N) <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> S4 - Sandy Gleyed Matrix </td> <td style="width:50%; vertical-align: top;"> <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input checked="" type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions </td> </tr> </table>												<input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck (LRR N) <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> S4 - Sandy Gleyed Matrix	<input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input checked="" type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions
<input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck (LRR N) <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> S4 - Sandy Gleyed Matrix	<input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input checked="" type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions												
Indicators for Problematic Soils ¹ <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N, <input type="checkbox"/> <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA <input type="checkbox"/> <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147) <input type="checkbox"/> <input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface Other (Explain in Remarks)													
¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.													
Restrictive Layer (If Observed) Type: Depth:					Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								
Remarks:													

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 3** Sample Point **SP06**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)				
	Species Name	% Cover	Dominant	Ind. Status
1.	<i>Acer saccharinum</i>	90	Y	FACW
2.	<i>Fraxinus pennsylvanica</i>	5	N	FACW
3.	<i>Quercus palustris</i>	5	N	FACW
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		100		
Sapling/Shrub Stratum (Plot size: 15 ft radius)				
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		
Herb Stratum (Plot size: 5 ft radius)				
1.	<i>Laportea canadensis</i>	15	Y	FAC
2.	<i>Lysimachia nummularia</i>	8	N	FACW
3.	<i>Campsis radicans</i>	5	N	FAC
4.	<i>Bidens frondosa</i>	2	N	FACW
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		30		
Woody Vine Stratum (Plot size: 30 ft radius)				
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

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: 100.0% (A/B)

Prevalence Index Worksheet

Total % Cover of:	Multiply by:
OBL spp. <u>0</u>	x 1 = <u>0</u>
FACW spp. <u>110</u>	x 2 = <u>220</u>
FAC spp. <u>20</u>	x 3 = <u>60</u>
FACU spp. <u>0</u>	x 4 = <u>0</u>
UPL spp. <u>0</u>	x 5 = <u>0</u>
Total <u>130</u> (A)	<u>280</u> (B)
Prevalence Index = B/A = <u>2.154</u>	

Hydrophytic Vegetation Indicators:

Yes ☒ No ☐ Rapid Test for Hydrophytic Vegetation

Yes ☒ No ☐ Dominance Test is > 50%

Yes ☒ No ☐ Prevalence Index is ≤ 3.0 *

Yes ☐ No ☒ Morphological Adaptations (Explain) *

Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☒ Yes ☐ No

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/20/20							
Applicant: AEP				County: Lawrence							
Investigator #1: Aaron Kwolek		Investigator #2: Matt Denzler		State: Ohio							
Soil Unit: Nolin silt loam, 0 to 3 percent slopes, occasionally floe		NW1/WWI Classification: N/A		Wetland ID: Wetland 3							
Landform: Rise		Local Relief: Convex		Sample Point: SP07							
Slope (%): 3		Latitude: 38.49860		Datum: NAD83							
Longitude: -82.647829				Community ID: UPL							
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1							
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N							
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --							
SUMMARY OF FINDINGS											
Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No									
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Remarks:											
HYDROLOGY											
Wetland Hydrology Indicators (Check here if indicators are not present): <input type="checkbox"/>											
Primary:		Secondary:									
<input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery		<input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test							
Field Observations:			Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Depth: (in.)								
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Depth: (in.)								
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Depth: (in.)								
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A											
Remarks:											
SOILS											
Map Unit Name: Nolin silt loam, 0 to 3 percent slopes, occasionally floe											
Taxonomy (Subgroup): Series D											
Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix		Color (Moist)		Mottles		Type	Location	Texture (e.g. clay, sand, loam)
			Color (Moist)	%	Color (Moist)	%					
0	1	1	10YR	2/2	100	--	--	--	--	--	silty clay
1	16	2	10YR	4/1	100	--	--	--	--	--	silty clay
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input checked="" type="checkbox"/>						Indicators for Problematic Soils ¹					
<input type="checkbox"/> 1 - Histosol <input type="checkbox"/> 2 - Histic Epipedon <input type="checkbox"/> 3 - Black Histic <input type="checkbox"/> 4 - Hydrogen Sulfide <input type="checkbox"/> 5 - Stratified Layers <input type="checkbox"/> 10 - 2 cm Muck (LRR N) <input type="checkbox"/> 11 - Depleted Below Dark Surface <input type="checkbox"/> 12 - Thick Dark Surface <input type="checkbox"/> 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> 4 - Sandy Gleyed Matrix		<input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions		<input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N) <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA) <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147)		<input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)					
Restrictive Layer (If Observed)		Type:		Depth:		Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Remarks:											

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 3**

Sample Point **SP07**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind. Status
1.	<i>Juglans nigra</i>	5	Y	FACU
2.	<i>Prunus serotina</i>	5	Y	FACU
3.	<i>Gleditsia triacanthos</i>	5	Y	FAC
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--

Total Cover = **15**

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	<i>Rosa multiflora</i>	5	Y	FACU
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--

Total Cover = **5**

Herb Stratum (Plot size: 5 ft radius)

1.	<i>Euonymus fortunei</i>	90	Y	UPL
2.	<i>Amphicarpaea bracteata</i>	3	N	FAC
3.	<i>Elymus canadensis</i>	5	N	FACU
4.	<i>Alliaria petiolata</i>	2	N	FACU
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--

Total Cover = **100**

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--

Total Cover = **0**

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **20.0%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

Multiply by:

OBL spp.	0	x 1 =	0
FACW spp.	0	x 2 =	0
FAC spp.	8	x 3 =	24
FACU spp.	22	x 4 =	88
UPL spp.	90	x 5 =	450

Total **120** (A) **562** (B)

Prevalence Index = B/A = **4.683**

Hydrophytic Vegetation Indicators:

Yes ☐ No ☒ Rapid Test for Hydrophytic Vegetation

Yes ☐ No ☒ Dominance Test is > 50%

Yes ☐ No ☒ Prevalence Index is ≤ 3.0 *

Yes ☐ No ☒ Morphological Adaptations (Explain) *

Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☒ No

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/21/20
Applicant: AEP				County: Lawrence
Investigator #1: Aaron Kwolek		Investigator #2: Matt Denzler		State: Ohio
Soil Unit: Steinsburg-Shelocta association, very steep		NWI/WWI Classification: N/A		Wetland ID: Wetland 4
Landform: Floodplain		Local Relief: Concave		Sample Point: SP08
Slope (%): 3%	Latitude: 38.49093	Longitude: -82.623664	Datum: NAD83	Community ID: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --

SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks:	

HYDROLOGY	
Wetland Hydrology Indicators (Check here if indicators are not present): <input type="checkbox"/> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><u>Primary:</u></p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 48%;"> <input checked="" type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery </div> <div style="width: 48%;"> <input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks) </div> </div> </div> <div style="width: 48%;"> <p><u>Secondary:</u></p> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input checked="" type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input checked="" type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test </div> </div>	

Field Observations:		Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 1 (in.)	
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 8 (in.)	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 0 (in.)	

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

SOILS	
Map Unit Name: Steinsburg-Shelocta association, very steep	Series Drainage Class:
Taxonomy (Subgroup):	

Taxonomy (Subgroup):											
Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix			Mottles					Texture (e.g. clay, sand, loam)
			Color (Moist)		%	Color (Moist)		%	Type	Location	
0	1	--	10YR	2/1	100	--	--	--	--	--	muck
1	16	--	10YR	3/1	92	5YR	5/8	8	C	PL	silty clay
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input type="checkbox"/>		Indicators for Problematic Soils¹	
<input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck (LRR N) <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> S4 - Sandy Gleyed Matrix	<input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input checked="" type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions	<input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N) <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA) <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147)	<input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed)	Type:	Depth:	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks:			

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 4** Sample Point **SP08**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind. Status
1.	<i>Salix interior</i>	10	Y	FACW
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--

Total Cover = **10**

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--

Total Cover = **0**

Herb Stratum (Plot size: 5 ft radius)

1.	<i>Juncus effusus</i>	80	Y	FACW
2.	<i>Scirpus atrovirens</i>	5	N	OBL
3.	<i>Epilobium coloratum</i>	10	N	FACW
4.	<i>Eutrochium maculatum</i>	5	N	FACW
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--

Total Cover = **100**

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--

Total Cover = **0**

Remarks:

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: **100.0%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

Multiply by:

OBL spp.	5	x 1 =	5
FACW spp.	105	x 2 =	210
FAC spp.	0	x 3 =	0
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0

Total **110** (A) **215** (B)

Prevalence Index = B/A = **1.955**

Hydrophytic Vegetation Indicators:

- Yes ☒ No ☐ Rapid Test for Hydrophytic Vegetation
 Yes ☒ No ☐ Dominance Test is > 50%
 Yes ☒ No ☐ Prevalence Index is ≤ 3.0 *
 Yes ☐ No ☒ Morphological Adaptations (Explain) *
 Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☒ Yes ☐ No

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/21/20
Applicant: AEP				County: Lawrence
Investigator #1: Aaron Kwolek		Investigator #2: Matt Denzler		State: Ohio
Soil Unit: Steinsburg-Shelocta association, very steep		NW1/WW1 Classification: N/A		Wetland ID: Wetland 4
Landform: Rise		Local Relief: Convex		Sample Point: SP09
Slope (%): 3%	Latitude: 38.46096	Longitude: -82.623601	Datum: NAD83	Community ID: UPL
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present): ☐

<u>Primary:</u> <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery	<input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)	<u>Secondary:</u> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: **N/A**

Remarks:

SOILS

Map Unit Name: **Steinsburg-Shelocta association, very steep** Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix		Color (Moist)	Mottles		Type	Location	Texture (e.g. clay, sand, loam)
			Color (Moist)	%		%				
0	16	--	10YR	4/4	100	--	--	--	--	silty clay
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input checked="" type="checkbox"/>		Indicators for Problematic Soils ¹	
<input type="checkbox"/> 1 - Histosol <input type="checkbox"/> 2 - Histic Epipedon <input type="checkbox"/> 3 - Black Histic <input type="checkbox"/> 4 - Hydrogen Sulfide <input type="checkbox"/> 5 - Stratified Layers <input type="checkbox"/> 10 - 2 cm Muck (LRR N) <input type="checkbox"/> 11 - Depleted Below Dark Surface <input type="checkbox"/> 12 - Thick Dark Surface <input type="checkbox"/> 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> 4 - Sandy Gleyed Matrix	<input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions	<input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N) <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA) <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147)	<input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed)	Type:	Depth:	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 4**

Sample Point **SP09**

VEGETATION (Species identified in all uppercase are non-native species.)																				
Tree Stratum (Plot size: 30 ft radius)																				
#	Species Name	% Cover	Dominant	Ind. Status																
1.	--	--	--	--																
2.	--	--	--	--																
3.	--	--	--	--																
4.	--	--	--	--																
5.	--	--	--	--																
6.	--	--	--	--																
7.	--	--	--	--																
8.	--	--	--	--																
9.	--	--	--	--																
10.	--	--	--	--																
Total Cover =		0																		
Sapling/Shrub Stratum (Plot size: 15 ft radius)																				
1.	<i>Rubus allegheniensis</i>	80	Y	FACU																
2.	--	--	--	--																
3.	--	--	--	--																
4.	--	--	--	--																
5.	--	--	--	--																
6.	--	--	--	--																
7.	--	--	--	--																
8.	--	--	--	--																
9.	--	--	--	--																
10.	--	--	--	--																
Total Cover =		80																		
Herb Stratum (Plot size: 5 ft radius)																				
1.	<i>Lonicera japonica</i>	95	Y	FAC																
2.	<i>Solidago canadensis</i>	5	N	FACU																
3.	--	--	--	--																
4.	--	--	--	--																
5.	--	--	--	--																
6.	--	--	--	--																
7.	--	--	--	--																
8.	--	--	--	--																
9.	--	--	--	--																
10.	--	--	--	--																
11.	--	--	--	--																
12.	--	--	--	--																
13.	--	--	--	--																
14.	--	--	--	--																
15.	--	--	--	--																
Total Cover =		100																		
Woody Vine Stratum (Plot size: 30 ft radius)																				
1.	--	--	--	--																
2.	--	--	--	--																
3.	--	--	--	--																
4.	--	--	--	--																
5.	--	--	--	--																
Total Cover =		0																		
Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																				
Prevalence Index Worksheet <table style="width:100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL spp. <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW spp. <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC spp. <u>95</u></td> <td>x 3 = <u>285</u></td> </tr> <tr> <td>FACU spp. <u>85</u></td> <td>x 4 = <u>340</u></td> </tr> <tr> <td>UPL spp. <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Total <u>180</u> (A)</td> <td><u>625</u> (B)</td> </tr> <tr> <td align="right" colspan="2">Prevalence Index = B/A = <u>3.472</u></td> </tr> </table>					Total % Cover of:	Multiply by:	OBL spp. <u>0</u>	x 1 = <u>0</u>	FACW spp. <u>0</u>	x 2 = <u>0</u>	FAC spp. <u>95</u>	x 3 = <u>285</u>	FACU spp. <u>85</u>	x 4 = <u>340</u>	UPL spp. <u>0</u>	x 5 = <u>0</u>	Total <u>180</u> (A)	<u>625</u> (B)	Prevalence Index = B/A = <u>3.472</u>	
Total % Cover of:	Multiply by:																			
OBL spp. <u>0</u>	x 1 = <u>0</u>																			
FACW spp. <u>0</u>	x 2 = <u>0</u>																			
FAC spp. <u>95</u>	x 3 = <u>285</u>																			
FACU spp. <u>85</u>	x 4 = <u>340</u>																			
UPL spp. <u>0</u>	x 5 = <u>0</u>																			
Total <u>180</u> (A)	<u>625</u> (B)																			
Prevalence Index = B/A = <u>3.472</u>																				
Hydrophytic Vegetation Indicators: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Rapid Test for Hydrophytic Vegetation Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Dominance Test is > 50% Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 * Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Morphological Adaptations (Explain) * Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Problem Hydrophytic Vegetation (Explain) * * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
Definitions of Vegetation Strata: <div style="margin-left: 40px;"> Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall. Woody Vines - All woody vines greater than 3.28 ft. in height. </div>																				
Hydrophytic Vegetation Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																				
Remarks:																				

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 10/21/20
Applicant: AEP				County: Lawrence
Investigator #1: Aaron Kwolek		Investigator #2: Matt Denzler		State: Ohio
Soil Unit: Steinsburg-Shelocta association, very steep	NW1/WWI Classification: PUBGh			Wetland ID: N/A
Landform: Terrace	Local Relief: Linear			Sample Point: SP10
Slope (%): 0%	Latitude: 38.49630	Longitude: -82.638143	Datum: NAD83	Community ID: UPL
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1
Are Vegetation <input checked="" type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present): ☐

<u>Primary:</u> <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery	<input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)	<u>Secondary:</u> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: **N/A**

Remarks:

SOILS

Map Unit Name: **Steinsburg-Shelocta association, very steep** Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix			Mottles					Texture (e.g. clay, sand, loam)
			Color (Moist)		%	Color (Moist)		%	Type	Location	
0	16	--	10YR	4/3	100	--	--	--	--	--	silty clay
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input checked="" type="checkbox"/>		Indicators for Problematic Soils ¹	
<input type="checkbox"/> 1 - Histosol <input type="checkbox"/> 2 - Histic Epipedon <input type="checkbox"/> 3 - Black Histic <input type="checkbox"/> 4 - Hydrogen Sulfide <input type="checkbox"/> 5 - Stratified Layers <input type="checkbox"/> 10 - 2 cm Muck (LRR N) <input type="checkbox"/> 11 - Depleted Below Dark Surface <input type="checkbox"/> 12 - Thick Dark Surface <input type="checkbox"/> 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> 4 - Sandy Gleyed Matrix	<input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions	<input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N) <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA) <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147)	<input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed)	Type:	Depth:	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project** Wetland ID: **N/A** Sample Point **SP10**

VEGETATION (Species identified in all uppercase are non-native species.)						
Tree Stratum (Plot size: 30 ft radius)						
	Species Name	% Cover	Dominant	Ind. Status		
1.	--	--	--	--		
2.	--	--	--	--		
3.	--	--	--	--		
4.	--	--	--	--		
5.	--	--	--	--		
6.	--	--	--	--		
7.	--	--	--	--		
8.	--	--	--	--		
9.	--	--	--	--		
10.	--	--	--	--		
Total Cover =		0				
Sapling/Shrub Stratum (Plot size: 15 ft radius)						
1.	--	--	--	--		
2.	--	--	--	--		
3.	--	--	--	--		
4.	--	--	--	--		
5.	--	--	--	--		
6.	--	--	--	--		
7.	--	--	--	--		
8.	--	--	--	--		
9.	--	--	--	--		
10.	--	--	--	--		
Total Cover =		0				
Herb Stratum (Plot size: 5 ft radius)						
1.	<i>Poa pratensis</i>	45	Y	FACU		
2.	<i>Schedonorus arundinaceus</i>	40	Y	FACU		
3.	<i>Trifolium repens</i>	5	N	FACU		
4.	<i>Plantago major</i>	5	N	FACU		
5.	<i>Glechoma hederacea</i>	5	N	FACU		
6.	--	--	--	--		
7.	--	--	--	--		
8.	--	--	--	--		
9.	--	--	--	--		
10.	--	--	--	--		
11.	--	--	--	--		
12.	--	--	--	--		
13.	--	--	--	--		
14.	--	--	--	--		
15.	--	--	--	--		
Total Cover =		100				
Woody Vine Stratum (Plot size: 30 ft radius)						
1.	--	--	--	--		
2.	--	--	--	--		
3.	--	--	--	--		
4.	--	--	--	--		
5.	--	--	--	--		
Total Cover =		0				
					Dominance Test Worksheet	
					Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)	
					Total Number of Dominant Species Across All Strata: 2 (B)	
					Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)	
					Prevalence Index Worksheet	
					<div style="display: flex; justify-content: space-between;"> <div>Total % Cover of:</div> <div>Multiply by:</div> </div>	
					OBL spp. 0 x 1 = 0	
					FACW spp. 0 x 2 = 0	
					FAC spp. 0 x 3 = 0	
					FACU spp. 100 x 4 = 400	
					UPL spp. 0 x 5 = 0	
					Total 100 (A) 400 (B)	
					Prevalence Index = B/A = 4.000	
					Hydrophytic Vegetation Indicators:	
					Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Rapid Test for Hydrophytic Vegetation	
					Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Dominance Test is > 50%	
					Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 *	
					Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Morphological Adaptations (Explain) *	
					Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Problem Hydrophytic Vegetation (Explain) *	
					* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
					Definitions of Vegetation Strata:	
					Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.	
					Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.	
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.	
					Woody Vines - All woody vines greater than 3.28 ft. in height.	
					Hydrophytic Vegetation Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks:						

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 12/17/20
Applicant: AEP				County: Lawrence
Investigator #1: Aaron Kwolek		Investigator #2: Kate Bomar		State: Ohio
Soil Unit: Nolan silt loam 0-3% slopes, occasionally flooded		NWI/WWI Classification: N/A		Wetland ID: Wetland 5
Landform: Depression		Local Relief: Concave		Sample Point: SP11
Slope (%): 1%	Latitude: 38.49887	Longitude: -82.650863	Datum: NAD83	Community ID: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Township: T1N
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?				Range: R18W Dir: --

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present): ☐

<p><u>Primary:</u></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery 	<ul style="list-style-type: none"> <input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks) 	<p><u>Secondary:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input checked="" type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input checked="" type="checkbox"/> D5 - FAC-Neutral Test
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 1 (in.)</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 4 (in.)</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 0 (in.)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: **N/A**

Remarks:

SOILS

Map Unit Name: **Nolan silt loam 0-3% slopes, occasionally flooded** Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix			Mottles					Texture (e.g. clay, sand, loam)
			Color (Moist)		%	Color (Moist)		%	Type	Location	
0	8	--	10YR	4/1	100	--	--	--	--	--	silty clay
8	16	--	10YR	4/1	90	10YR	5/8	10	C	M	silty clay
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

<p>NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input type="checkbox"/></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <ul style="list-style-type: none"> <input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck (LRR N) <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> S4 - Sandy Gleyed Matrix </div> <div style="width: 48%;"> <ul style="list-style-type: none"> <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input checked="" type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions </div> </div>		<p>Indicators for Problematic Soils¹</p> <ul style="list-style-type: none"> <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N, <input type="checkbox"/> <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA <input type="checkbox"/> <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147 <input type="checkbox"/> A10 - 2cm Muck (MLRA 147) A16 - Coast Prairie Redox (MLRA 147, 148) F19 - Piedmont Floodplain Soils (MLRA 136, 147) TF12 - Very Shallow Dark Surface Other (Explain in Remarks)
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¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed)	Type:	Depth:		<p>Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks:

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 5** Sample Point **SP11**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind. Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		

Herb Stratum (Plot size: 5 ft radius)

1.	<i>Typha latifolia</i>	85	Y	OBL
2.	<i>Poa palustris</i>	5	N	FACW
3.	<i>Carex frankii</i>	5	N	OBL
4.	<i>Symphyotrichum pilosum</i>	5	N	FAC
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		100		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet

Total % Cover of:	Multiply by:
OBL spp. <u>90</u>	x 1 = <u>90</u>
FACW spp. <u>5</u>	x 2 = <u>10</u>
FAC spp. <u>5</u>	x 3 = <u>15</u>
FACU spp. <u>0</u>	x 4 = <u>0</u>
UPL spp. <u>0</u>	x 5 = <u>0</u>
Total <u>100</u> (A)	<u>115</u> (B)
Prevalence Index = B/A = <u>1.150</u>	

Hydrophytic Vegetation Indicators:

Yes ☒ No ☐ Rapid Test for Hydrophytic Vegetation

Yes ☒ No ☐ Dominance Test is > 50%

Yes ☒ No ☐ Prevalence Index is ≤ 3.0 *

Yes ☐ No ☒ Morphological Adaptations (Explain) *

Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☒ Yes ☐ No

Additional Remarks:

Project/Site: Bellefonte Extension 138 kV Line Rebuild Project		Stantec Project #: 193707276		Date: 12/17/20							
Applicant: AEP				County: Lawrence							
Investigator #1: Aaron Kwolek		Investigator #2: Kate Bomar		State: Ohio							
Soil Unit: Nolan silt loam 0-3% slopes, occasionally flooded		NW1/WW1 Classification: N/A		Wetland ID: Wetland 5							
Landform: Rise		Local Relief: Convex		Sample Point: SP12							
Slope (%): 1%		Latitude: 38.49887		Datum: NAD83							
Longitude: -82.650863				Community ID: UPL							
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Section: S 1							
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present?		Township: T1N							
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Range: R18W Dir: --							
SUMMARY OF FINDINGS											
Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No									
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Remarks:											
HYDROLOGY											
Wetland Hydrology Indicators (Check here if indicators are not present): <input type="checkbox"/>											
Primary:			Secondary:								
<input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery			<input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test								
Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.)			Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A											
Remarks:											
SOILS											
Map Unit Name: Nolan silt loam 0-3% slopes, occasionally flooded Series Drainage Class:											
Taxonomy (Subgroup):											
Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)											
Top Depth	Bottom Depth	Horizon	Matrix		Color (Moist)		Mottles		Type	Location	Texture (e.g. clay, sand, loam)
			Color (Moist)	%	Color (Moist)	%					
0	10	--	10YR	4/4	100	--	--	--	--	--	silty clay
10	16	--	7.5YR	5/8	100	--	--	--	--	--	silty clay
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
NRCS Hydric Soil Field Indicators (check here if indicators are not present): <input checked="" type="checkbox"/> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> 1 - Histosol <input type="checkbox"/> 2 - Histic Epipedon <input type="checkbox"/> 3 - Black Histic <input type="checkbox"/> 4 - Hydrogen Sulfide <input type="checkbox"/> 5 - Stratified Layers <input type="checkbox"/> 10 - 2 cm Muck (LRR N) <input type="checkbox"/> 11 - Depleted Below Dark Surface <input type="checkbox"/> 12 - Thick Dark Surface <input type="checkbox"/> 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148) <input type="checkbox"/> 4 - Sandy Gleyed Matrix </div> <div> <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> S8 - Polyvalue Below Dark Surface (MLRA 147, 148) <input type="checkbox"/> S9 - Thin Dark Surface (MLRA 147, 148) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions </div> <div> <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR N, <input type="checkbox"/> <input type="checkbox"/> F13 - Umbric Surface (MLRA 122, 136) <input type="checkbox"/> <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA <input type="checkbox"/> <input type="checkbox"/> F21 - Red Parent Material (MLRA 127, 147, <input type="checkbox"/> </div> <div> Indicators for Problematic Soils ¹ <input type="checkbox"/> A10 - 2cm Muck (MLRA 147) <input type="checkbox"/> A16 - Coast Prairie Redox (MLRA 147, 148) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 136, 147) <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks) </div> </div>											
Restrictive Layer (If Observed)		Type:		Depth:							
Remarks: Fill material		Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No									

¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 5** Sample Point **SP12**

VEGETATION (Species identified in all uppercase are non-native species.)																				
Tree Stratum (Plot size: 30 ft radius)																				
#	Species Name	% Cover	Dominant	Ind. Status																
1.	--	--	--	--																
2.	--	--	--	--																
3.	--	--	--	--																
4.	--	--	--	--																
5.	--	--	--	--																
6.	--	--	--	--																
7.	--	--	--	--																
8.	--	--	--	--																
9.	--	--	--	--																
10.	--	--	--	--																
Total Cover =		0																		
Sapling/Shrub Stratum (Plot size: 15 ft radius)																				
1.	--	--	--	--																
2.	--	--	--	--																
3.	--	--	--	--																
4.	--	--	--	--																
5.	--	--	--	--																
6.	--	--	--	--																
7.	--	--	--	--																
8.	--	--	--	--																
9.	--	--	--	--																
10.	--	--	--	--																
Total Cover =		0																		
Herb Stratum (Plot size: 5 ft radius)																				
#	Species Name	% Cover	Dominant	Ind. Status																
1.	<i>Taraxacum officinale</i>	2	N	FACU																
2.	<i>Glechoma hederacea</i>	15	N	FACU																
3.	<i>Elymus canadensis</i>	40	Y	FACU																
4.	<i>Poa pratensis</i>	30	Y	FACU																
5.	<i>Trifolium repens</i>	13	N	FACU																
6.	--	--	--	--																
7.	--	--	--	--																
8.	--	--	--	--																
9.	--	--	--	--																
10.	--	--	--	--																
11.	--	--	--	--																
12.	--	--	--	--																
13.	--	--	--	--																
14.	--	--	--	--																
15.	--	--	--	--																
Total Cover =		100																		
Woody Vine Stratum (Plot size: 30 ft radius)																				
1.	--	--	--	--																
2.	--	--	--	--																
3.	--	--	--	--																
4.	--	--	--	--																
5.	--	--	--	--																
Total Cover =		0																		
Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																				
Prevalence Index Worksheet <table style="width:100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL spp. <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW spp. <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC spp. <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU spp. <u>100</u></td> <td>x 4 = <u>400</u></td> </tr> <tr> <td>UPL spp. <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Total <u>100</u> (A)</td> <td><u>400</u> (B)</td> </tr> <tr> <td align="right" colspan="2">Prevalence Index = B/A = <u>4.000</u></td> </tr> </table>					Total % Cover of:	Multiply by:	OBL spp. <u>0</u>	x 1 = <u>0</u>	FACW spp. <u>0</u>	x 2 = <u>0</u>	FAC spp. <u>0</u>	x 3 = <u>0</u>	FACU spp. <u>100</u>	x 4 = <u>400</u>	UPL spp. <u>0</u>	x 5 = <u>0</u>	Total <u>100</u> (A)	<u>400</u> (B)	Prevalence Index = B/A = <u>4.000</u>	
Total % Cover of:	Multiply by:																			
OBL spp. <u>0</u>	x 1 = <u>0</u>																			
FACW spp. <u>0</u>	x 2 = <u>0</u>																			
FAC spp. <u>0</u>	x 3 = <u>0</u>																			
FACU spp. <u>100</u>	x 4 = <u>400</u>																			
UPL spp. <u>0</u>	x 5 = <u>0</u>																			
Total <u>100</u> (A)	<u>400</u> (B)																			
Prevalence Index = B/A = <u>4.000</u>																				
Hydrophytic Vegetation Indicators: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Rapid Test for Hydrophytic Vegetation Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Dominance Test is > 50% Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 * Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Morphological Adaptations (Explain) * Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Problem Hydrophytic Vegetation (Explain) * * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
Definitions of Vegetation Strata: <div style="margin-bottom: 10px;"> Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height. </div> <div style="margin-bottom: 10px;"> Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall. </div> <div style="margin-bottom: 10px;"> Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall. </div> <div> Woody Vines - All woody vines greater than 3.28 ft. in height. </div>																				
Hydrophytic Vegetation Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																				
Remarks:																				

Additional Remarks:

Project/Site: **Belleville Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 6** Sample Point **SP13**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind. Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		

Herb Stratum (Plot size: 5 ft radius)

1.	<i>Juncus articulatus</i>	45	Y	OBL
2.	<i>Ranunculus sceleratus</i>	45	Y	OBL
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		90		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

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: 100.0% (A/B)

Prevalence Index Worksheet

Total % Cover of: Multiply by:
OBL spp. 90 x 1 = 90
FACW spp. 0 x 2 = 0
FAC spp. 0 x 3 = 0
FACU spp. 0 x 4 = 0
UPL spp. 0 x 5 = 0
Total 90 (A) 90 (B)
Prevalence Index = B/A = 1.000

Hydrophytic Vegetation Indicators:

Yes ☐ No ☒ Rapid Test for Hydrophytic Vegetation
Yes ☒ No ☐ Dominance Test is > 50%
Yes ☒ No ☐ Prevalence Index is ≤ 3.0 *
Yes ☐ No ☒ Morphological Adaptations (Explain) *
Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☒ Yes ☐ No

Additional Remarks:

Project/Site: **Bellefonte Extension 138 kV Line Rebuild Project**

Wetland ID: **Wetland 6** Sample Point **SP14**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind. Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		
Sapling/Shrub Stratum (Plot size: 15 ft radius)				
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		
Herb Stratum (Plot size: 5 ft radius)				
1.	<i>Elymus canadensis</i>	40	Y	FACU
2.	<i>Poa pratensis</i>	40	Y	FACU
3.	<i>Taraxacum officinale</i>	10	N	FACU
4.	<i>Trifolium repens</i>	15	N	FACU
5.	<i>Lepidium virginicum</i>	5	N	FACU
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		110		
Woody Vine Stratum (Plot size: 30 ft radius)				
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **0** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **0.0%** (A/B)

Prevalence Index Worksheet

Total % Cover of:	Multiply by:
OBL spp. 0	x 1 = 0
FACW spp. 0	x 2 = 0
FAC spp. 0	x 3 = 0
FACU spp. 110	x 4 = 440
UPL spp. 0	x 5 = 0
Total 110 (A)	440 (B)
Prevalence Index = B/A = 4.000	

Hydrophytic Vegetation Indicators:

Yes ☐ No ☒ Rapid Test for Hydrophytic Vegetation

Yes ☐ No ☒ Dominance Test is > 50%

Yes ☐ No ☒ Prevalence Index is ≤ 3.0 *

Yes ☐ No ☒ Morphological Adaptations (Explain) *

Yes ☐ No ☒ Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

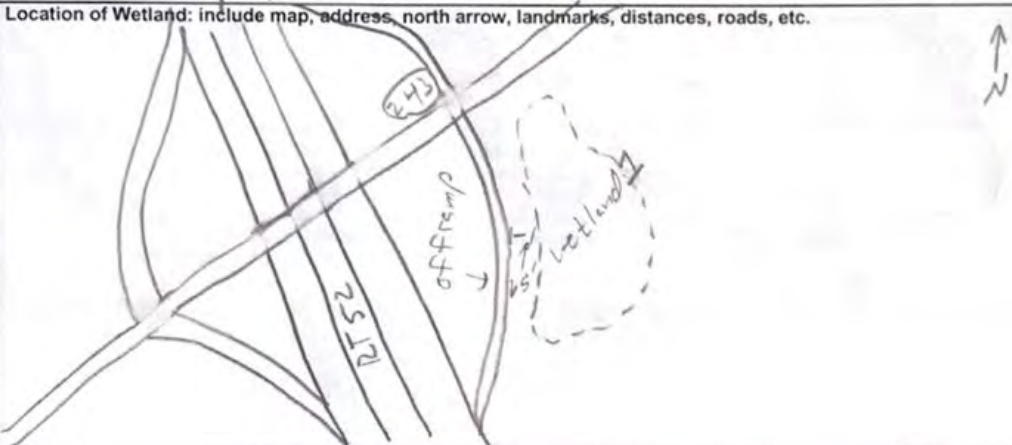
Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☒ No

Additional Remarks:

D.2 ORAM DATA FORMS

Background Information

Name:	Aaron Kwolek		
Date:	11/5/2020		
Affiliation:	stantec		
Address:	11687 Lebanon Rd Cincinnati, OH 45241		
Phone Number:	513 842 8200		
e-mail address:	Aaron.Kwolek@stantec.com		
Name of Wetland:	Wetland 1		
Vegetation Community(ies):	PSS		
HGM Class(es):	Depressional		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
Lat/Long or UTM Coordinate	38.498994°N -82.648348°W		
USGS Quad Name	Ashland		
County	Lawrence		
Township	Coal Grove		
Section and Subsection	S30 T1N R18W		
Hydrologic Unit Code	050901030103		
Site Visit	10/20/2020		
National Wetland Inventory Map	PFO1A		
Ohio Wetland Inventory Map	N/A		
Soil Survey	No. Nolin silt loam, 0-3% slopes occasionally flooded		
Delineation report/map	See Ecological Inventory Report		

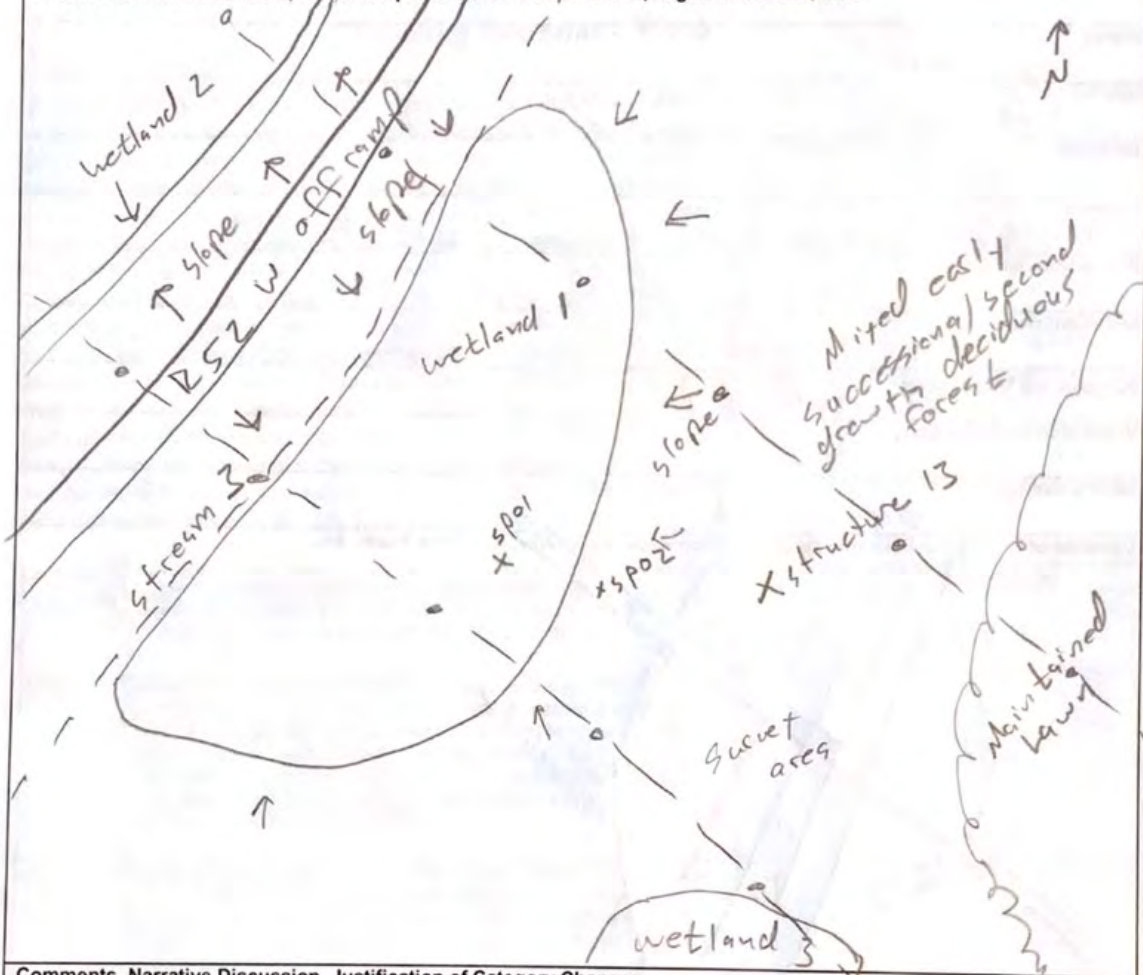
Name of Wetland:

Wetland 1

Wetland Size (acres, hectares):

1.05 ac / 0.4296

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



Comments, Narrative Discussion, Justification of Category Changes:

Culverts facilitate stream 3 flow, not water movement within wetland.

Final score : 30

Category: 1 or 2 Gray Zone

wetland 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.	<input checked="" type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	<input checked="" type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	

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

Narrative Rating

wetland 1

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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> 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 <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , 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	<u>NO</u> 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 <i>Sphagnum</i> 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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> Go to Question 8b

wetland 1

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

wetland 1

Table 1. Characteristic plant species.

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

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

Site: Wetland 1

Rater(s): A Kwalec

Date: 10/20/20

2	2
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

3	5
max 14 pts	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

17	22
max 30 pts	subtotal

Metric 3. Hydrology.

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

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

10	32
max 20 pts	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

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

32

subtotal this page

Site: Wetland 1 Rater(s): A Kwolek Date: 10/21/20

32

subtotal first page

0 32

max 10 pts

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-2 30

max 20 pts

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ Emergent
- ☒ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other

6b. horizontal (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
- ☒ 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

30

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

wetland 1

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input checked="" type="radio"/> NO	If yes, Category 1.
	Question 6. Bogs	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 7. Fens	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES <input checked="" type="radio"/> NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <input checked="" type="radio"/> NO	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	17	
	Metric 4. Habitat	10	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersions, microtopography	-2	
	TOTAL SCORE	30	Category based on score breakpoints

1 or 2 Green
Zone

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

wetland 1

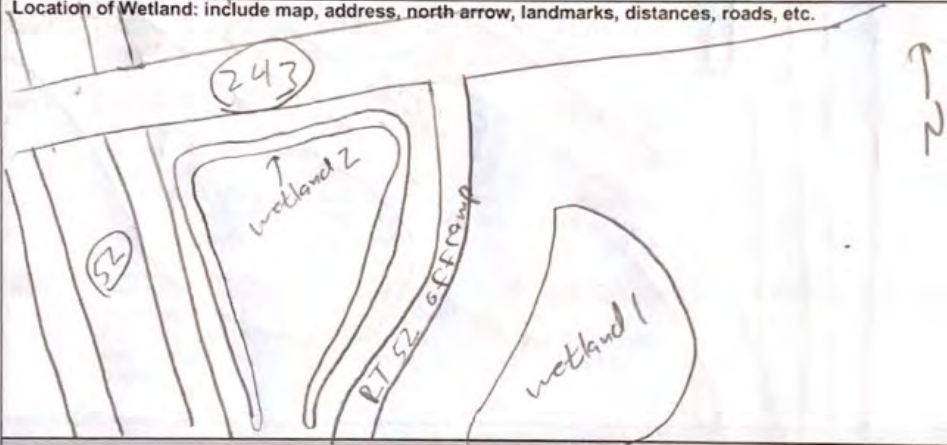
Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	<input checked="" type="radio"/> NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> 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	<input checked="" type="radio"/> 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	<input checked="" type="radio"/> NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> 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?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range	<input type="radio"/> 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	<input checked="" type="radio"/> 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 <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> 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	<input checked="" type="radio"/> 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	<input checked="" type="radio"/> Category 2	Category 3

1002 Gray Zone

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	Aaron Kwalek		
Date:	11/5/20		
Affiliation:	Stantec		
Address:	11687 Lebanon Rd Cincinnati, OH 45241		
Phone Number:	513 842 8200		
e-mail address:	Aaron.Kwalek@stantec.com		
Name of Wetland:	wetland 2		
Vegetation Community(ies):	PEM/ PSS		
HGM Class(es):	Depressional		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
			
Lat/Long or UTM Coordinate	38.499683°N - 82.649295°W		
USGS Quad Name	Ashland		
County	Lawrence		
Township	Coal Grove		
Section and Subsection	S30 T1N R18W		
Hydrologic Unit Code	050901030103		
Site Visit	10/20/20		
National Wetland Inventory Map	N/A		
Ohio Wetland Inventory Map	N/A		
Soil Survey	No - No. 1 silt loam 0-3% silt loam Occasionally flooded		
Delineation report/map	see Ecological Inventory Report		

Name of Wetland: <u>Wetland 2</u>	
Wetland Size (acres, hectares): <u>0.41 ac / 0.16 ha</u>	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
<p>The sketch is a hand-drawn map of Wetland 2. At the top, 'Macdon Pike' is labeled. To the left, 'RT-52 East on ramp' is written along a road. A vertical road is labeled 'RT SZ'. The wetland area is divided into several sections: 'old field' at the top, 'wetland 2' in the upper right, 'wetland 1' in the middle, and another 'wetland 1' at the bottom right. A 'stream 3' is shown at the bottom left, flowing towards an 'off ramp'. A 'slope' is indicated with an arrow pointing up. Other labels include 'PSS', 'SP05', 'SP04', and 'SP03'. A north arrow is in the top right corner.</p>	
Comments, Narrative Discussion, Justification of Category Changes:	
Final score : <u>11</u>	Category: <u>1</u>

wetland 2

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.	✓	
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

Wetland 2

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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> 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 <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , 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	<u>NO</u> 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 <i>Sphagnum</i> 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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> Go to Question 8b

Wetland 2

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

wetland Z

Table 1. Characteristic plant species.

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

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

Site: <u>wetland 2</u>	Rater(s): <u>A kwalek</u>	Date: <u>10/20/20</u>
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1	1
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

1	2
max 14 pts	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

7	9
max 30 pts	subtotal

Metric 3. Hydrology.

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

- ☒ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

- ☐ point source (nonstormwater)
- ☐ filling/grading
- ☐ road bed/RR track
- ☐ dredging
- ☒ other culvert

6	15
max 20 pts	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

- ☒ mowing
- ☒ grazing
- ☒ clearcutting
- ☐ selective cutting
- ☐ woody debris removal
- ☐ toxic pollutants

- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☐ farming
- ☐ nutrient enrichment

15
subtotal this page

Site: <u>Wetland 2</u>	Rater(s): <u>A Knolek</u>	Date: <u>10/20/20</u>
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15

subtotal first page

0	15
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max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-4	11
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max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
- ☐ 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

11

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

wetland 2

		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	1	
	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	6	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	-4	
	TOTAL SCORE	11	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Wetland 2

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 <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> 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 <i>greater</i> than the Category 2 scoring threshold (<i>including</i> 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 <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> 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.

Background Information

Name:	Aron Kwoluk		
Date:	11/5/20		
Affiliation:	Stantec		
Address:	11687 Lebanon Rd, Cincinnati, OH 45241		
Phone Number:	513 842 8200		
e-mail address:	Aron.Kwoluk@Stantec.com		
Name of Wetland:	wetland 3		
Vegetation Community(ies):	PFO		
HGM Class(es):	Depressional		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
Lat/Long or UTM Coordinate	38.498536°N, -82.647897		
USGS Quad Name	Ashland		
County	Lawrence		
Township	Coal Grove		
Section and Subsection	S30 T1N R18W		
Hydrologic Unit Code	050401030103		
Site Visit	10/20/20		
National Wetland Inventory Map	PFO 1A		
Ohio Wetland Inventory Map	N/A		
Soil Survey	No. Nolin silt loam - 0-3% slopes occasionally flooded		
Delineation report/map	See Ecological Inventory Report		

Name of Wetland: <u>Wetland 3</u>	
Wetland Size (acres, hectares): <u>0.1796 / 0.0719</u>	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
Comments, Narrative Discussion, Justification of Category Changes:	
<p>Final score : <u>45</u></p> <p>Category: <u>2</u></p>	

wetland 3

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.	✓	
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

Wetland 3

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 <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , 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 <i>Sphagnum</i> 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

wetland 3

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

wetland 3

Table 1. Characteristic plant species.

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

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

Site: Wetland 3

Rater(s): A Kwolek

Date: 10/20/20

1	1
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

9	10
max 14 pts	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

13	23
max 30 pts	subtotal

Metric 3. Hydrology.

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

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

13	36
max 20 pts	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

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

36

subtotal this page

last revised 1 February 2001 jjm

Site: Wetland 3

Rater(s): A Kwolek

Date: 10/20/20

36

subtotal first page

0

36

max 10 pts

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

9

45

max 20 pts

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☐ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other

6b. horizontal (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/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

45

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 3

		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
Quantitative Rating	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.
	Metric 1. Size	1	
	Metric 2. Buffers and surrounding land use	9	
	Metric 3. Hydrology	13	
	Metric 4. Habitat	13	
	Metric 5. Special Wetland Communities	0	
Metric 6. Plant communities, interspersion, microtopography	9		
	TOTAL SCORE	45	Category based on score breakpoints 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet


wetland 3

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 <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> 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 <i>greater</i> than the Category 2 scoring threshold (<i>including</i> 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 <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> 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.

Background Information

Name:	Aaron Kwolek		
Date:	11/5/20		
Affiliation:	Stantec		
Address:	11687 Lebanon Rd Cincinnati, OH 45241		
Phone Number:	5138428200		
e-mail address:	Aaron.Kwolek@Stantec.com		
Name of Wetland:	Wetland 4		
Vegetation Community(ies):	PEM		
HGM Class(es):	riverine / slope		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
			
Lat/Long or UTM Coordinate	38.490938, -82.623664		
USGS Quad Name	Cottlettsburg		
County	Lawrence		
Township	Coal Grove		
Section and Subsection	S1 T1N R18W		
Hydrologic Unit Code	050901030103		
Site Visit	10/20/20		
National Wetland Inventory Map	N/A		
Ohio Wetland Inventory Map	N/A		
Soil Survey	S.E. Steinsburg-Shelocks Association, very steep		
Delineation report/map	See Ecological Inventory Report		

Name of Wetland: <u>wetland 4</u>	
Wetland Size (acres, hectares): <u>0.01 ac / 0.004 ha</u>	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
<p>The sketch depicts a landscape with a stream flowing from the top left towards the center. To the left of the stream is a 'slopes' area with an arrow pointing towards the stream. To the right of the stream is another 'slopes' area with an arrow pointing away from the stream. A circled area labeled 'wetland 4' is situated at the bottom of the stream, with an arrow pointing to it from below. Above the stream, there is a 'str 6' label with an 'x' and a 'str 5' label with an 'x'. To the right of the stream, there is a label 'Early successional deciduous forest' with an 'x' and 'str 5' below it. A north arrow is located in the top right corner of the sketch area.</p>	
Comments, Narrative Discussion, Justification of Category Changes:	
<p>Final score : <u>22</u></p> <p>Category: <u>1</u></p>	

Wetland 41

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.	✓	
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

wetland 4

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 <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , 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 <i>Sphagnum</i> 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

Wetland 4

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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> Complete Quantitative Rating

wetland 4

Table 1. Characteristic plant species.

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

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

Site: Wetland 4Rater(s): A KwolekDate: 10/21/20

0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

6	6
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

12	18
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

- ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input

- ☒ point source (nonstormwater)
☒ filling/grading
☐ road bed/RR track
☐ dredging
☐ other

3	21
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

- ☒ mowing
☒ grazing
☒ clearcutting
☒ selective cutting
☐ woody debris removal
☐ toxic pollutants

- ☐ shrub/sapling removal
☐ herbaceous/aquatic bed removal
☐ sedimentation
☐ dredging
☐ farming
☐ nutrient enrichment

21

subtotal this page

last revised 1 February 2001 jjm

Site: wetland 4 Rater(s): A kwolck Date: 10/21/20

21

subtotal first page

0 21

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1 22

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other

6b. horizontal (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
- ☐ 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

22

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

wetland 4

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 1.
	Question 6. Bogs	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 7. Fens	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3
Question 11. Relict Wet Prairies	YES <input type="radio"/> NO <input checked="" type="radio"/>	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	6	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersed, microtopography	1	
	TOTAL SCORE	22	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

wetland 4

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 <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> 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 <i>greater</i> than the Category 2 scoring threshold (<i>including</i> 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 <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> 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.

Wetland 5

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization	
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

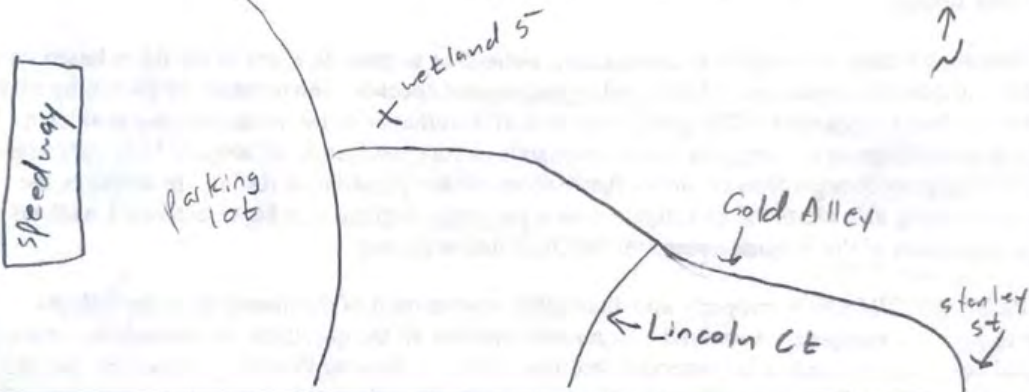
The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

Background Information

Name:	Aaron Kwalek		
Date:	12/17/2020		
Affiliation:	Stantec		
Address:	11687 Lebanon Rd Cincinnati, OH 45241		
Phone Number:	513 842 8200		
e-mail address:	Aaron.kwalek@stantec.com		
Name of Wetland:	Wetland 5		
Vegetation Community(ies):	PEM		
HGM Class(es):	Depressional		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
			
Lat/Long or UTM Coordinate	38.498895, -82.650820		
USGS Quad Name	Ashland		
County	Lawrence		
Township	T1N		
Section and Subsection	R18W S30		
Hydrologic Unit Code	050901030103		
Site Visit	12/17/20		
National Wetland Inventory Map	None		
Ohio Wetland Inventory Map	None		
Soil Survey	Nolin silt loam, 0-3% slopes, occasionally flooded		
Delineation report/map	See Ecological Inventory Report		

Name of Wetland: <u>Wetland 5</u>	
Wetland Size (acres, hectares): <u>0.02</u>	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
Comments, Narrative Discussion, Justification of Category Changes:	
<p>Final score : <u>9</u></p> <p>Category: <u> </u></p>	

wetland 5

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.	✓	
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.

Name of Wetland: <u>Wetland 5</u>	
Wetland Size (acres, hectares): <u>0.02</u>	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
<p>The sketch depicts a wetland area labeled 'wetland 1' and 'PEM'. To the left of the wetland is a 'parking lot'. Above the wetland is a 'Maintained lawn'. A 'Gold Alley' is shown below the wetland. Arrows indicate 'slope' and 'xsp12' and 'xsp11'.</p>	
Comments, Narrative Discussion, Justification of Category Changes:	
Final score : <u>9</u>	Category: <u></u>

Narrative Rating

wetland 5

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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> 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 <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , 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	<u>NO</u> 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 <i>Sphagnum</i> 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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> Go to Question 8b

Wetland 5

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

wetland 5

Table 1. Characteristic plant species.

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

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

Site: Wetland 5 Rater(s): AJC Date: 12/17/20

0	0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

2	2
max 14 pts	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

8	10
max 30 pts	subtotal

Metric 3. Hydrology.

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

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

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

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

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

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

Check all disturbances observed

- ☐ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

3b. Connectivity. Score all that apply.

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

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

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

- ☐ point source (nonstormwater)
- ☒ filling/grading
- ☒ road bed/RR track
- ☐ dredging
- ☐ other

3	13
max 20 pts	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

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

13
subtotal this page

Site: wetland 5 Rater(s): AJC Date: 12/17/20

0
subtotal first page

0 13
max 10 pts subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-4 9
max 20 pts subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ Vegetated hummocks/tussocks
- ☐ 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

9

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 5

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

Complete Wetland Categorization Worksheet.

wetland 5-

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	<input checked="" type="radio"/> NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> 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	<input checked="" type="radio"/> 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	<input checked="" type="radio"/> NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> 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?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range	<input type="radio"/> 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	<input checked="" type="radio"/> 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 <i>moderate</i> OR <i>superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> 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	<input checked="" type="radio"/> 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	<input checked="" type="radio"/> Category 1	<input type="radio"/> Category 2	<input type="radio"/> Category 3

End of Ohio Rapid Assessment Method for Wetlands.

wetland 6

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization	
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

Background Information

Name:	Aaron Kwalek		
Date:	12/17/21		
Affiliation:	Stantec		
Address:	11687 Lebanon Rd, Cincinnati OH 45241		
Phone Number:	513 842 8200		
e-mail address:	Aaron.Kwalek@stantec.com		
Name of Wetland:	Wetland 6		
Vegetation Community(ies):	PEM		
HGM Class(es):	Depressions		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
Lat/Long or UTM Coordinate	38.497531, -82.654252		
USGS Quad Name	Ashland		
County	Lawrence		
Township	T1N		
Section and Subsection	R18W S30		
Hydrologic Unit Code	050901030105		
Site Visit	12/17/20		
National Wetland Inventory Map	None		
Ohio Wetland Inventory Map	None		
Soil Survey	Elkinsville - Urban land complex 1-8% slopes		
Delineation report/map	see Ecological Inventory Report		

Name of Wetland: <u>wetland 6</u>	
Wetland Size (acres, hectares): <u>0.164c</u>	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
Comments, Narrative Discussion, Justification of Category Changes:	
Final score : <u>13</u>	Category: <u>1</u>

Scoring Boundary Worksheet

wetland b

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.	✓	
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

wetland 6

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 <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , 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 <i>Sphagnum</i> 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

wetland 6

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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> 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	<u>NO</u> Complete Quantitative Rating

wetland 6

Table 1. Characteristic plant species.

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

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

Site: <u>wetland b</u>	Rater(s): <u>ASK</u>	Date: <u>12/17/20</u>
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1	1
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

- Select one size class and assign score.
- ☐ >50 acres (>20.2ha) (6 pts)
 - ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
 - ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
 - ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
 - ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
 - ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
 - ☐ <0.1 acres (0.04ha) (0 pts)

1	2
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
 - ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
 - ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
 - ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
 - ☐ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
 - ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
 - ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7	9
max 30 pts.	subtotal

Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- ☐ High pH groundwater (5)
 - ☐ Other groundwater (3)
 - ☒ Precipitation (1)
 - ☐ Seasonal/intermittent surface water (3)
 - ☐ Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- ☒ 100 year floodplain (1)
 - ☐ Between stream/lake and other human use (1)
 - ☐ Part of wetland/upland (e.g. forest), complex (1)
 - ☐ Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- ☐ >0.7 (27.6in) (3)
 - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
 - ☒ <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- ☐ Semi- to permanently inundated/saturated (4)
 - ☐ Regularly inundated/saturated (3)
 - ☒ Seasonally inundated (2)
 - ☐ Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- ☐ None or none apparent (12)
 - ☐ Recovered (7)
 - ☐ Recovering (3)
 - ☒ Recent or no recovery (1)

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

3	12
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- ☐ None or none apparent (4)
 - ☐ Recovered (3)
 - ☐ Recovering (2)
 - ☒ Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- ☐ Excellent (7)
 - ☐ Very good (6)
 - ☐ Good (5)
 - ☐ Moderately good (4)
 - ☐ Fair (3)
 - ☐ Poor to fair (2)
 - ☒ Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- ☐ None or none apparent (9)
 - ☐ Recovered (6)
 - ☐ Recovering (3)
 - ☒ Recent or no recovery (1)

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

12
subtotal this page

Site: Wetland 6 Rater(s): AK Date: 12/17/20

12
subtotal first page

0 12
max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1 13
max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other

6b. horizontal (plan view) Interspersions.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
- ☐ 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

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End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

wetland b

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <u>NO</u>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <u>NO</u>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <u>NO</u>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <u>NO</u>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <u>NO</u>	If yes, Category 1.
	Question 6. Bogs	YES <u>NO</u>	If yes, Category 3.
	Question 7. Fens	YES <u>NO</u>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <u>NO</u>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES <u>NO</u>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES <u>NO</u>	If yes, Category 3
Question 11. Relict Wet Prairies	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	<u>1</u>	
	Metric 2. Buffers and surrounding land use	<u>1</u>	
	Metric 3. Hydrology	<u>7</u>	
	Metric 4. Habitat	<u>3</u>	
	Metric 5. Special Wetland Communities	<u>0</u>	
	Metric 6. Plant communities, interspersion, microtopography	<u>1</u>	
	TOTAL SCORE	<u>13</u>	Category based on score breakpoints <u>1</u>

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

wetland b

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 <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> 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 <i>greater</i> than the Category 2 scoring threshold (<i>including</i> 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 <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> 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.

D.3 HHEI AND QHEI DATA FORMS



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **40**

Stream & Location: Kelleys Fork Extension 138 kV Line Rebuild Project RM: --- Date: 10/19/06

Stream: Ohio River Scorers Full Name & Affiliation: A. Twalek / Stantec
River Code: --- STORET #: --- Lat./ Long.: 38.4971 182.6562 Office verified location ☐

1) **SUBSTRATE** Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL RIFFLE	OTHER TYPES	POOL RIFFLE	ORIGIN	QUALITY
<input type="checkbox"/> BLDR / SLABS [10]	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/> LIMESTONE [1]	<input checked="" type="checkbox"/> HEAVY [-2]
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/>	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> MODERATE [-1]
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/>	<input checked="" type="checkbox"/> MUCK [2]	<input checked="" type="checkbox"/>	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/> NORMAL [0]
<input type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> SILT [2]	<input checked="" type="checkbox"/>	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> FREE [1]
<input type="checkbox"/> SAND [6]	<input checked="" type="checkbox"/>	<input type="checkbox"/> ARTIFICIAL [0]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> SANDSTONE [0]	<input checked="" type="checkbox"/> EXTENSIVE [-2]
<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/>			<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> MODERATE [-1]

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments: ---

Check ONE (Or 2 & average)

SILT ☐ BEDDEDNESS ☐

Substrate Maximum 20 **0**

Check ONE (Or 2 & average)

SHALE [-1] COAL FINES [-2]

Check ONE (Or 2 & average)

EXTENSIVE >75% [11] MODERATE 25-75% [7] SPARSE 5-25% [3] NEARLY ABSENT <5% [1]

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

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

Comments: ---

Cover Maximum 20 **5**

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

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

Comments: ---

Channel Maximum 20 **14**

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

River right looking downstream

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

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

Recreation Potential

Primary Contact

Secondary Contact

Pool / Current Maximum 12 **8**

Channel Maximum 20 **3**

5) **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply
<input checked="" type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]
<input type="checkbox"/> 0.7-1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> SLOW [1]
<input type="checkbox"/> 0.4-0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> VERY FAST [1]
<input type="checkbox"/> 0.2-0.4m [1]		<input checked="" type="checkbox"/> FAST [1]
<input type="checkbox"/> < 0.2m [0]		<input type="checkbox"/> MODERATE [1]
		<input type="checkbox"/> INTERSTITIAL [-1]
		<input type="checkbox"/> INTERMITTENT [-2]
		<input type="checkbox"/> EDDIES [1]

Indicate for reach - pools and riffles.

Comments: ---

Recreation Potential

Primary Contact

Secondary Contact

Pool / Current Maximum 12 **8**

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

Check ONE (Or 2 & average).

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]
			<input checked="" type="checkbox"/> EXTENSIVE [-1]

Comments: ---

Riffle / Run Maximum 8 **0**

6) **GRADIENT** 2.4 ft/mi ☐ VERY LOW - LOW [2-4] ☒ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]

DRAINAGE AREA 7622.9 mi²

%POOL: 0 %GLIDE: 0 %RUN: 100 %RIFFLE: 0

Gradient Maximum 10 **10**

AJ SAMPL. REACH

Check ALL that apply

METHOD

- ☐ BOAT
☒ WADE
☐ L. LINE
☐ OTHER

STAGE

1st - sample pass - 2nd

- ☐ HIGH
☐ UP
☒ NORMAL
☐ LOW
☐ DRY

DISTANCE

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

61
meters**CLARITY**

1st - sample pass - 2nd

- ☐ < 20 cm
☒ 20 - 40 cm
☐ 40 - 70 cm
☐ > 70 cm / CTB
☐ SECCHI DEPTH

CANOPY

1st pass

2nd pass

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

CJ RECREATION

AREA DEPTH

POOL: ☐ > 100ft² ☐ > 3ft

Comment RE: Reach consistency/Is reach typical of stream? R

ation/Observed - Inferred, Other/Sampling observations, Concerns, Access direct etc.

Survey area surrounded by coal storage fields

w/in Impounded and dredged area for Barge traffic

BJ AESTHETICS

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

DJ MAINTENANCE

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

Circle some & COMMENT

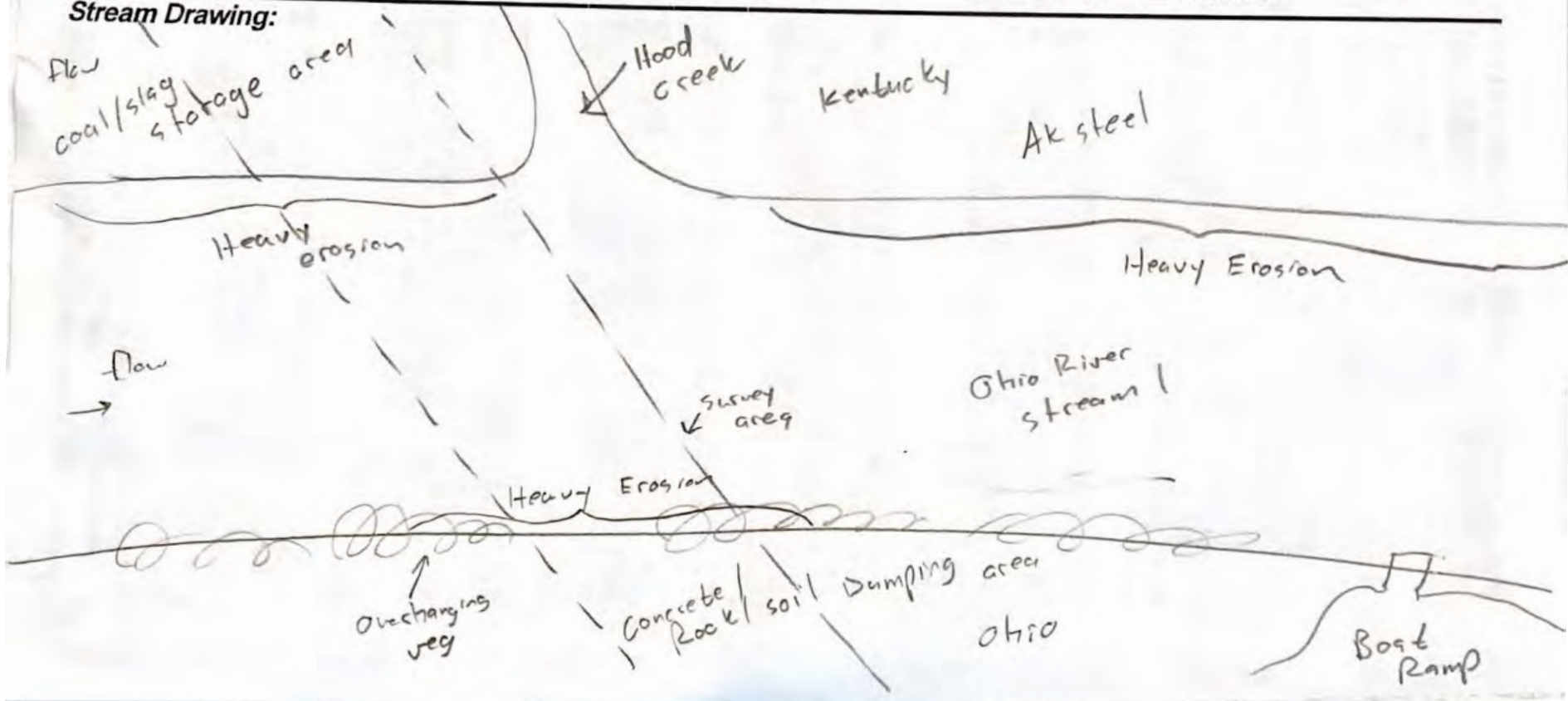
EJ ISSUES

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

FJ MEASUREMENTS

- \bar{x} width
 \bar{x} depth
 max. depth
 \bar{x} bankfull width
 bankfull \bar{x} depth
 W/D ratio
 bankfull max. depth
 floodprone x^2 width
 entrench. ratio

Legacy Tree:

Stream Drawing:



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **45**

Stream & Location: Bellefonte Extension 138 KULine Rebuild Project RM: Date: 10/19/2020

Stream 2 Ice Creek Scorers Full Name & Affiliation: A Kwolek / Standec

River Code: - STORET #: - Lat./Long.: 38.4997 182.6539 Office verified location ☐

1) **SUBSTRATE** Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY		
POOL RIFFLE	POOL RIFFLE	POOL RIFFLE	POOL RIFFLE	Check ONE (Or 2 & average)		Check ONE (Or 2 & average)		
<input type="checkbox"/> BLDR/SLABS [10]	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> LIMESTONE [1]	<input checked="" type="checkbox"/> HEAVY [-2]	<div style="display: flex; align-items: center;"><div style="margin-right: 10px;">SILT</div><div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-align: center;">0</div></div>		<div style="display: flex; align-items: center;"><div style="margin-right: 10px;">EMBEDDEDNESS</div><div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-align: center;">0</div></div>		
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> MODERATE [-1]					
<input type="checkbox"/> COBBLE [8]	<input checked="" type="checkbox"/> MUCK [2]	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/> NORMAL [0]					
<input type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/> SILT [2]	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> FREE [1]					
<input type="checkbox"/> SAND [6]	<input type="checkbox"/> ARTIFICIAL [0]	<input checked="" type="checkbox"/> SANDSTONE [0]	<input checked="" type="checkbox"/> EXTENSIVE [-2]					
<input type="checkbox"/> BEDROCK [5]	(Score natural substrates; ignore sludge from point-sources)		<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> MODERATE [-1]			Substrate Maximum 20	
		<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/> NORMAL [0]					
			<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> NONE [1]				
			<input type="checkbox"/> COAL FINES [-2]					

NUMBER OF BEST TYPES: ☐ 4 or more ☒ 3 or less ☐ 0

Comments

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

		AMOUNT	
		Check ONE (Or 2 & average)	
<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70cm [2]	<input type="checkbox"/> EXTENSIVE >75% [11]	<div style="display: flex; align-items: center;"><div style="margin-right: 10px;">Cover</div><div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-align: center;">8</div></div>
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> MODERATE 25-75% [7]	
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]	
<input type="checkbox"/> ROOTMATS [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	<input type="checkbox"/> NEARLY ABSENT <5% [1]	

Comments

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

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

Comments

Channel
Maximum
20
12

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

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

Comments

Indicate predominant land use(s) past 100m riparian.
Riparian
Maximum
10
7

5) **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY	
Check ONE (ONLY)		Check ONE (Or 2 & average)		Check ALL that apply	
<input checked="" type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	<input type="checkbox"/> SLOW [1]	<div style="border: 1px solid black; padding: 5px;">Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)</div>	
<input type="checkbox"/> 0.7-<1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]		
<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [0]	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]		
<input type="checkbox"/> 0.2-<0.4m [1]		<input checked="" type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]		
<input type="checkbox"/> < 0.2m [0]		Indicate for reach - pools and riffles.			

Comments

Pool /
Current
Maximum
12
8

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

Check ONE (Or 2 & average).		NO RIFFLE [metric=0]	
RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]

Comments

Riffle /
Run
Maximum
8
0

6) **GRADIENT** (13.3 ft/mi) ☐ VERY LOW - LOW [2-4]
DRAINAGE AREA (139 mi²) ☒ MODERATE [6-10]
☒ HIGH - VERY HIGH [10-6]

%POOL: 10 %GLIDE: 0
%RUN: 90 %RIFFLE: 0

Gradient
Maximum
10
10

AJ SAMPLE REACH

Check ALL that apply

METHOD

- ☐ BOAT
☒ WADE
☐ LINE
☐ OTHER

DISTANCE

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

CLARITY

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

CANOPY

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

STAGE

- ☐ HIGH
☐ UP
☒ NORMAL
☐ LOW
☐ DRY

Comment RE: Reach consistency/Is reach typical of stream? R

tion/Observed - Inferred, Other/Sampling observations, Concerns, Access direct etc.

Flood backwater of the Ohio River

Very heavy silt and muck

Boat activity present

FJ MEASUREMENTS

- ☐ width
☐ depth
☐ max. depth
☐ bankfull width
☐ bankfull depth
☐ WD ratio
☐ bankfull max. depth
☐ floodprone x² width
☐ entrench. ratio
 Legacy Tree:

EJ ISSUES

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

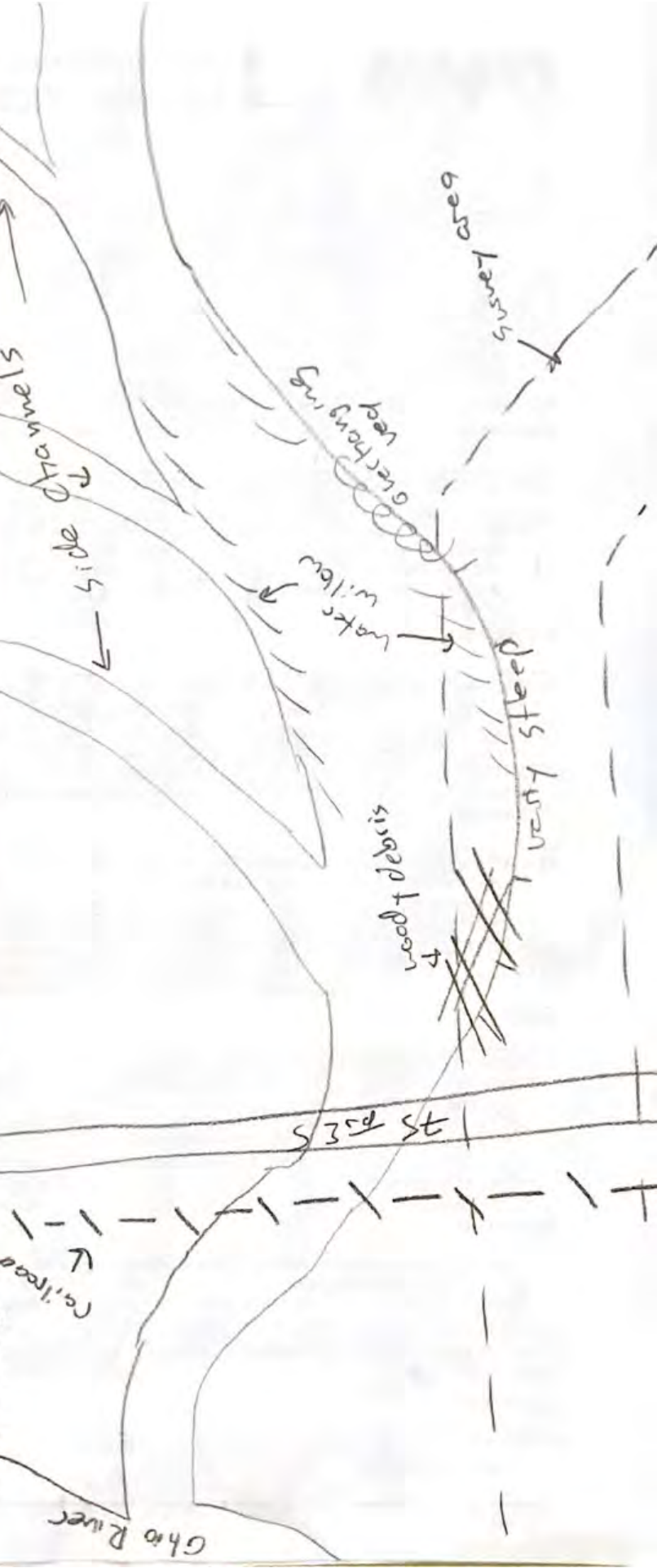
DJ MAINTENANCE

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

BJ AESTHETICS

- ☐ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☒ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☐ OIL SHEEN
☐ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSOs/SSOs/OUTFALLS
 AREA DEPTH
 POOL: ☐ > 100m² ☐ > 3ft

Stream Drawing:





Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **60**

SITE NAME/LOCATION Bellefonte Extension 138 kv Line Rebuild Project
SITE NUMBER Stream 3 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) <1 mi²
LENGTH OF STREAM REACH (ft) 200 LAT 38.499117 LONG -82.648504 RIVER MILE
DATE 10/20/20 SCORER ASK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B				HHEI Metric Points Substrate Max = 40
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pt]	25	<div style="border: 1px solid black; padding: 5px; text-align: center;">15</div>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	10	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pt]	10	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 pts]		
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	25	<input type="checkbox"/> ARTIFICIAL [3 pts]		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock		(A) 9	(B) 6	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 6				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)				Pool Depth Max = 30
<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> 5 cm - 10 cm [15 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts] <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]				
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): 17				<div style="border: 1px solid black; padding: 5px; text-align: center;">25</div>
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box)				
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 6") [15 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] <input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 4' 6" - 9' 7") [20 pts]				
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters) 2.1				<div style="border: 1px solid black; padding: 5px; text-align: center;">20</div>

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY • NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/> Wide >10m	<input checked="" type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage	<div style="border: 1px solid black; padding: 5px; text-align: center;">17</div>
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field	<input checked="" type="checkbox"/> Urban or Industrial	
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Open Pasture, Row Crop	
<input checked="" type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction	

COMMENTS

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS 1st recent rain

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
---	--	---	---	--

Stream 3

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Ashland NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Cool Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation: 10/20/15 Quantity: 0.15

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): Y Canopy (% open) 50

Were samples collected for water chemistry? (Y/N): _____ Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) 19 Dissolved Oxygen (mg/l) 1 pH (S.U.) 7.2 Conductivity (umhos/cm) _____

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

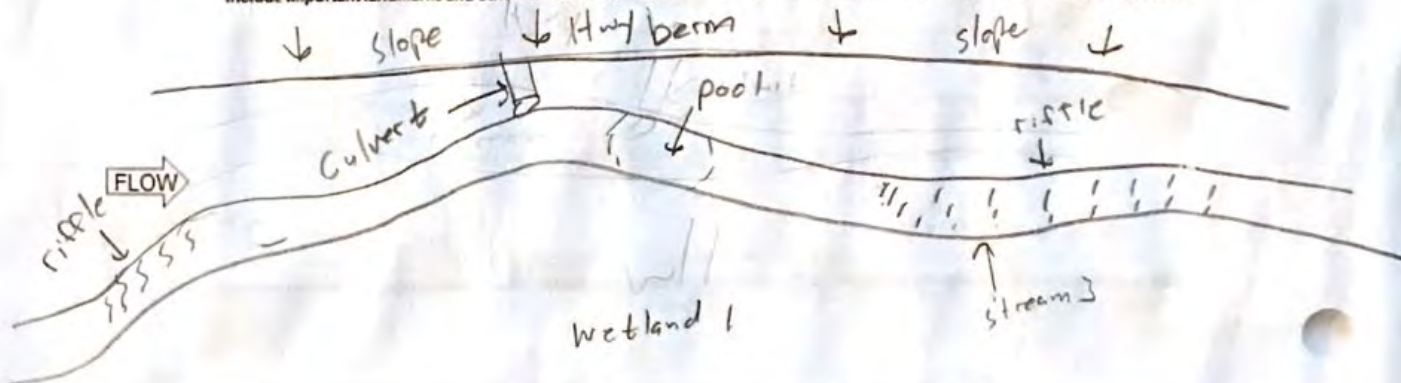
Salamanders Observed? (Y/N) Y Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): sk. p. sc.

Comments Regarding Biology: _____

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

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



AKMD504

Field Methods for Evaluating Primary Headwater Streams in Ohio
Ohio EPA, Division of Surface Water

Version 4.0
October 2018



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

71

SITE NAME/LOCATION Bellefonte Extension 138 kV Line Rebuild Project
SITE NUMBER Stream 4 RIVER BASIN 0412 RIVER CODE DRAINAGE AREA (mi²) <1 mi²
LENGTH OF STREAM REACH (ft) 200 LAT 38.497279 LONG -82.644642 RIVER MILE
DATE 10/20/20 SCORER ASK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B				HHEI Metric Points Substrate Max = 40
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pt]	20	<div style="border: 1px solid black; padding: 5px; text-align: center;">21</div> A + B
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]		
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	10	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	25	<input type="checkbox"/> MUCK [0 pts]		
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	25	<input type="checkbox"/> ARTIFICIAL [3 pts]		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>5</u>		(A) <u>15</u>	(B) <u>6</u>	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <u>15</u>		TOTAL NUMBER OF SUBSTRATE TYPES: <u>6</u>		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				Pool Depth Max = 30
<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> 5 cm - 10 cm [15 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts] <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]				
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>21</u>				Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):				
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input checked="" type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]				
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters): <u>3.4</u>				

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN ZONE (Per Bank)

L R
☐ Wide >10m
☐ Moderate 5-10m
☒ Narrow <5m
☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank)

L R
☐ Mature Forest, Wetland
☒ Immature Forest, Shrub or Old Field
☒ Residential, Park, New Field
☐ Fenced Pasture
☐ Conservation Tillage
☐ Urban or Industrial
☐ Open Pasture, Row Crop
☐ Mining or Construction

COMMENTS

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

☒ Stream Flowing ☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial) ☐ Dry channel, no water (ephemeral)

COMMENTS Perennial

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

☐ None ☒ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

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

OH = 8 P = 1
B2D = 11 + 2.5

Stream 4

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Ashlan NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/20/20 Quantity: 0.15
Photo-documentation Notes: _____
Elevated Turbidity? (Y/N): Y Canopy (% open): 15
Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____
Field Measures: Temp (°C) 18 Dissolved Oxygen (mg/l) ✓ pH (S.U.) 8.1 Conductivity (umhos/cm) _____
Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____
Additional comments/description of pollution impacts: _____

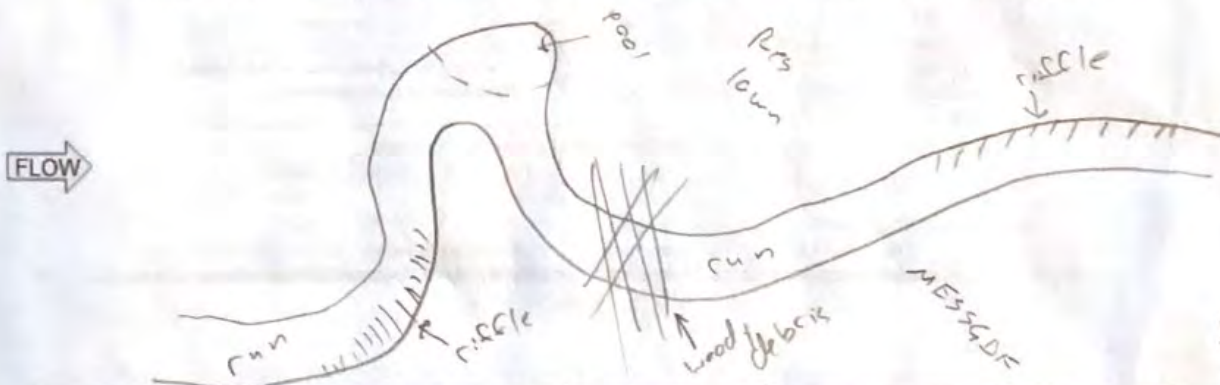
BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____
Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____
Salamanders Observed? (Y/N) N Species observed (if known): _____
Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): _____
Comments Regarding Biology: Caddis Fly, Crayfish

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

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



AKMD505



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

66

SITE NAME/LOCATION Bellevue Extension 138 KV Line Rebuild Project
SITE NUMBER 410005 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) 4.1
LENGTH OF STREAM REACH (ft) 200 LAT 38.495257 LONG -82.634678 RIVER MILE
DATE 10/20/20 SCORER ASK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.				HHEI Metric Points Substrate Max = 40 21 A + B
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> SILT [3 pts]	10	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5	
<input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> FINE DETRITUS [3 pts]	10	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	_____	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40	<input type="checkbox"/> MUCK [0 pts]	_____	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 pts]	_____	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _____ (A) 15 (B) 16				
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 6				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				Pool Depth Max = 30 25
<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> 5 cm - 10 cm [15 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts] <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]				
COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 16				
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):				Bankfull Width Max=30 20
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] <input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]				
COMMENTS _____ AVERAGE BANKFULL WIDTH (meters): 2.5				

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH
(Per Bank)

L R
☒ ☒ Wide >10m
☐ ☐ Moderate 5-10m
☐ ☐ Narrow <5m
☐ ☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank)

L R
☒ ☒ Mature Forest, Wetland
☒ ☒ Immature Forest, Shrub or Old Field
☐ ☐ Residential, Park, New Field
☐ ☐ Fenced Pasture

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

COMMENTS _____

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

☒ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)

☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Dry channel, no water (ephemeral)

COMMENTS INT

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

☒ None
☐ 0.5

☐ 1.0
☐ 1.5

☐ 2.0
☐ 2.5

☐ 3.0
☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft)

☐ Flat to Moderate

☐ Moderate (2 ft/100 ft)

☒ Moderate to Severe

☐ Severe (10 ft/100 ft)

GH = 4' ↑ = 0.75
BDS = 8' ↑ = 1.25

stream 5

ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Ashland NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): NO Date of last precipitation: 10/20/20 Quantity: 0.15"

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): Y Canopy (% open): 60

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) 17 Dissolved Oxygen (mg/l) ✓ pH (S.U.) 7.7 Conductivity (umhos/cm) ✓

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

Additional comments/description of pollution impacts: Sedimentation from local logging

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

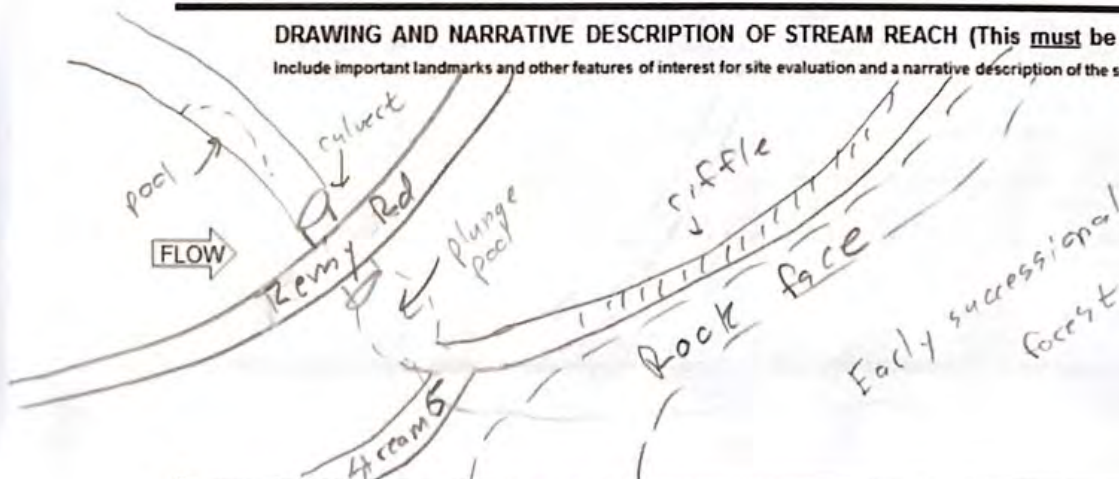
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): Scud

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

48

SITE NAME/LOCATION Bellefonte Extension 138 KV Line Rebuild Project
SITE NUMBER Stream 6 RIVER BASIN 040 RIVER CODE DRAINAGE AREA (mi²) 201
LENGTH OF STREAM REACH (ft) 60 LAT 38.495211 LONG -82.635801 RIVER MILE
DATE 10/20/20 SCORER ASK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY <u>two</u> predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points Substrate Max = 40 13 A + B																																									
<table border="0"> <tr> <th>TYPE</th> <th></th> <th>PERCENT</th> </tr> <tr> <td><input type="checkbox"/> BLDR SLABS [16 pts]</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> BOULDER (>256 mm) [16 pts]</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> BEDROCK [16 pts]</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]</td> <td></td> <td></td> </tr> </table>	TYPE		PERCENT		<input type="checkbox"/> BLDR SLABS [16 pts]			<input type="checkbox"/> BOULDER (>256 mm) [16 pts]			<input type="checkbox"/> BEDROCK [16 pts]			<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]			<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]			<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]			<table border="0"> <tr> <th>TYPE</th> <th></th> <th>PERCENT</th> </tr> <tr> <td><input checked="" type="checkbox"/> SILT [3 pts]</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> FINE DETRITUS [3 pts]</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> CLAY or HARDPAN [0 pts]</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> MUCK [0 pts]</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> ARTIFICIAL [3 pts]</td> <td></td> <td></td> </tr> </table>	TYPE		PERCENT	<input checked="" type="checkbox"/> SILT [3 pts]			<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]			<input type="checkbox"/> FINE DETRITUS [3 pts]			<input type="checkbox"/> CLAY or HARDPAN [0 pts]			<input type="checkbox"/> MUCK [0 pts]			<input type="checkbox"/> ARTIFICIAL [3 pts]			
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Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>5</u>		(A) <u>9</u>	(B) <u>4</u>																																										
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <u>9</u> TOTAL NUMBER OF SUBSTRATE TYPES: <u>4</u>																																													
2. Maximum Pool Depth (Measure the <u>maximum</u> pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):				Pool Depth Max = 30 15																																									
<table border="0"> <tr> <td><input type="checkbox"/> > 30 centimeters [20 pts]</td> <td><input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts]</td> </tr> <tr> <td><input type="checkbox"/> > 22.5 - 30 cm [30 pts]</td> <td><input type="checkbox"/> < 5 cm [5 pts]</td> </tr> <tr> <td><input type="checkbox"/> > 10 - 22.5 cm [25 pts]</td> <td><input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]</td> </tr> </table>					<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts]	<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]	<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]																																			
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COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>8</u>																																													
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements). (Check ONLY one box):				Bankfull Width Max = 30 20																																									
<table border="0"> <tr> <td><input type="checkbox"/> > 4.0 meters (> 13') [30 pts]</td> <td><input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]</td> </tr> <tr> <td><input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]</td> <td><input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]</td> </tr> <tr> <td><input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]</td> <td></td> </tr> </table>					<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]	<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																																				
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COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters) <u>2.5</u>																																													

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)

L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide >10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m
<input type="checkbox"/>	<input type="checkbox"/>	None

FLOODPLAIN QUALITY (Most Predominant per Bank)

L	R		L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS INT Spring Fed

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
---	---	---	--	--

64 = 4' x 0.5
B2B = 8' x 0.75

Stream 6

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ DWH Name: Tree Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Ashland NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/20/20 Quantity: _____
 Photo-documentation Notes: _____
 Elevated Turbidity? (Y/N): Y Canopy (% open): 60
 Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____
 Field Measures: Temp (°C) 15 Dissolved Oxygen (mg/l) 7 pH (S.U.) 8.1 Conductivity (umhos/cm) 7
 Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____
 Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____
 Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____
 Salamanders Observed? (Y/N) N Species observed (if known): _____
 Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): Scud
 Comments Regarding Biology: _____

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

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



AKMD507



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

30

SITE NAME/LOCATION Bellefonte Extension 138 KV Line Rebuild Project
SITE NUMBER Stream 7 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) <1 mi²
LENGTH OF STREAM REACH (ft) 80 LAT 38.496227 LONG -82.638336 RIVER MILE
DATE 10/20/20 SCORER ASK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY <u>two</u> predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points Substrate Max = 40 10 A + B																												
<table border="1"> <thead> <tr> <th>TYPE</th> <th>PERCENT</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> BLDG SLABS [16 pts]</td><td></td></tr> <tr><td><input type="checkbox"/> BOULDER (>256 mm) [16 pts]</td><td></td></tr> <tr><td><input type="checkbox"/> BEDROCK [16 pts]</td><td>10</td></tr> <tr><td><input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td><td></td></tr> <tr><td><input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td><td>15</td></tr> <tr><td><input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]</td><td>25</td></tr> </tbody> </table>	TYPE	PERCENT	<input type="checkbox"/> BLDG SLABS [16 pts]			<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> BEDROCK [16 pts]	10	<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15	<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	25	<table border="1"> <thead> <tr> <th>TYPE</th> <th>PERCENT</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> SILT [3 pts]</td><td></td></tr> <tr><td><input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td><td></td></tr> <tr><td><input type="checkbox"/> FINE DETRITUS [3 pts]</td><td></td></tr> <tr><td><input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]</td><td>50</td></tr> <tr><td><input type="checkbox"/> MUCK [0 pts]</td><td></td></tr> <tr><td><input type="checkbox"/> ARTIFICIAL [3 pts]</td><td></td></tr> </tbody> </table>	TYPE	PERCENT	<input type="checkbox"/> SILT [3 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]		<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	50	<input type="checkbox"/> MUCK [0 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]			
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<input type="checkbox"/> MUCK [0 pts]																																
<input type="checkbox"/> ARTIFICIAL [3 pts]																																
Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock (A) <u>6</u>		Total of Percentages of Silt, Leaf Pack/Woody Debris, Fine Detritus, Clay or Hardpan, Muck, Artificial (B) <u>4</u>																														
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <u>6</u> TOTAL NUMBER OF SUBSTRATE TYPES: <u>4</u>																																
2. Maximum Pool Depth (Measure the <u>maximum</u> pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				Pool Depth Max = 30 15																												
<table border="1"> <tbody> <tr><td><input type="checkbox"/> > 30 centimeters [20 pts]</td><td><input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts]</td></tr> <tr><td><input type="checkbox"/> > 22.5 - 30 cm [30 pts]</td><td><input type="checkbox"/> < 5 cm [5 pts]</td></tr> <tr><td><input type="checkbox"/> > 10 - 22.5 cm [25 pts]</td><td><input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]</td></tr> </tbody> </table>					<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts]	<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]	<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]																						
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COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>9</u>																																
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):				Bankfull Width Max = 30 5																												
<table border="1"> <tbody> <tr><td><input type="checkbox"/> > 4.0 meters (> 13') [30 pts]</td><td><input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]</td></tr> <tr><td><input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]</td><td><input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]</td></tr> <tr><td><input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]</td><td></td></tr> </tbody> </table>					<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]	<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																							
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<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																																
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters) <u>10</u>																																

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS Eph

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (10 ft/100 ft)
---	---	---	---	---

Stream 7

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTEAM DESIGNATED USE(S)

☒ WWH Name: Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Astland NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Cool Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/20/20 Quantity: 0.15"
 Photo-documentation Notes: _____
 Elevated Turbidity? (Y/N): Y Canopy (% open): 50
 Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): 1
 Field Measures: Temp (°C) 16.2 Dissolved Oxygen (mg/l) ✓ pH (S.U.) 7.8 Conductivity (umhos/cm) ✓
 Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____
 Additional comments/description of pollution impacts: _____

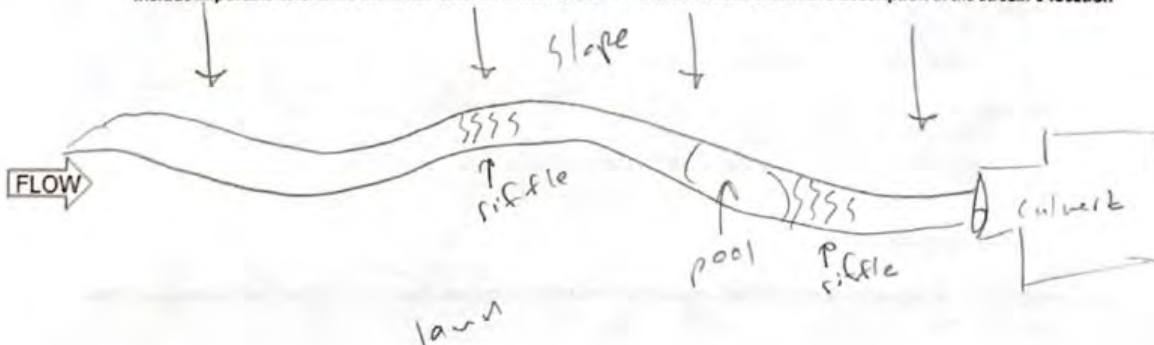
BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____
 Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____
 Salamanders Observed? (Y/N) N Species observed (if known): _____
 Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____
 Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

12

SITE NAME/LOCATION Bellefonte Extension 138 KV Line Rebuild Project
SITE NUMBER 4100008 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) 41 mi²
LENGTH OF STREAM REACH (ft) 90 LAT 38.496587 LONG -82.629139 RIVER MILE
DATE 10/20/20 SCORER ATK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY TWO predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points Substrate Max = 40 7 A + B
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pt]	15	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]		
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]		
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	70	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		<input type="checkbox"/> MUCK [0 pts]		
<input type="checkbox"/> SAND (<2 mm) [6 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>15</u>		(A) <u>3</u>	(B) <u>4</u>	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <u>3</u> TOTAL NUMBER OF SUBSTRATE TYPES: <u>4</u>				
2. Maximum Pool Depth (Measure the <u>maximum</u> pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)				Pool Depth Max = 30 0
<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts] <input type="checkbox"/> 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]				
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>0</u>				
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box)				Bankfull Width Max = 30 5
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] <input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> < 1.0 m (< 3' 3") [5 pts]				
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters): <u>0.8</u>				

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m	Wide >10m	Mature Forest, Wetland	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m	Moderate 5-10m	Immature Forest, Shrub or Old Field	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m	Narrow <5m	Residential, Park, New Field	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None	None	Fenced Pasture	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (10 ft/100 ft)
---	---	---	---	---

Stream 8

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Ashland NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/20 Quantity: 0.15

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 0

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

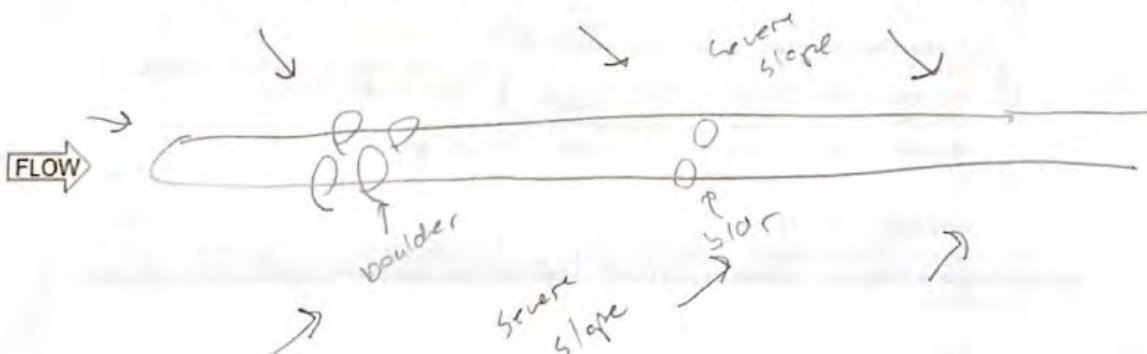
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: No H₂O

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

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





Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

18

SITE NAME/LOCATION Nellefonte Extension 138 kv Line Rebuild Project
SITE NUMBER Stream 9 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) 20.1 mi²
LENGTH OF STREAM REACH (ft) 200 LAT 38.491232 LONG -82.61350 RIVER MILE
DATE 10/21/20 SCORER AJK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points Substrate Max = 40 8 A + B
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/>	<input checked="" type="checkbox"/> SILT [3 pts]	<input type="checkbox"/> 50	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/>	
<input type="checkbox"/> BEDROCK [16 pts]	<input type="checkbox"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/>	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/>	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pts]	<input type="checkbox"/> 35	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 15	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/>	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 15	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/>	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>5</u> (A) <u>3</u> (B) <u>5</u>				
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <u>3</u> TOTAL NUMBER OF SUBSTRATE TYPES: <u>5</u>				

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):		Pool Depth Max = 30 5
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> 5 cm - 10 cm [15 pts]	
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]	
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]	
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>4</u>		

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements). (Check ONLY one box):		Bankfull Width Max = 30 5
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]	
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	<input type="checkbox"/>	
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters) <u>0.8</u>		

This information must also be completed

RIPIARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPIARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wide >10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/>	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/> Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/> None	<input type="checkbox"/>	<input type="checkbox"/> Fenced Pasture
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Mining or Construction

COMMENTS

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

☒ Stream Flowing ☐ Moist Channel, isolated pools, no flow (intermittent)

☐ Subsurface flow with isolated pools (interstitial) ☐ Dry channel, no water (ephemeral)

COMMENTS from recent rain, ephemeral

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

☐ None ☒ 1.0 ☐ 2.0 ☐ 3.0

☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

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

Stream 9

ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Little Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Catlettsburg NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/20 Quantity: _____
 Photo-documentation Notes: _____
 Elevated Turbidity? (Y/N): N Canopy (% open): 5
 Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): 1
 Field Measures Temp (°C): 16 Dissolved Oxygen (mg/l): 1 pH (S.U.): 8.1 Conductivity (umhos/cm): 1
 Is the sampling reach representative of the stream (Y/N): Y If not, explain: _____
 Additional comments/description of pollution impacts: _____

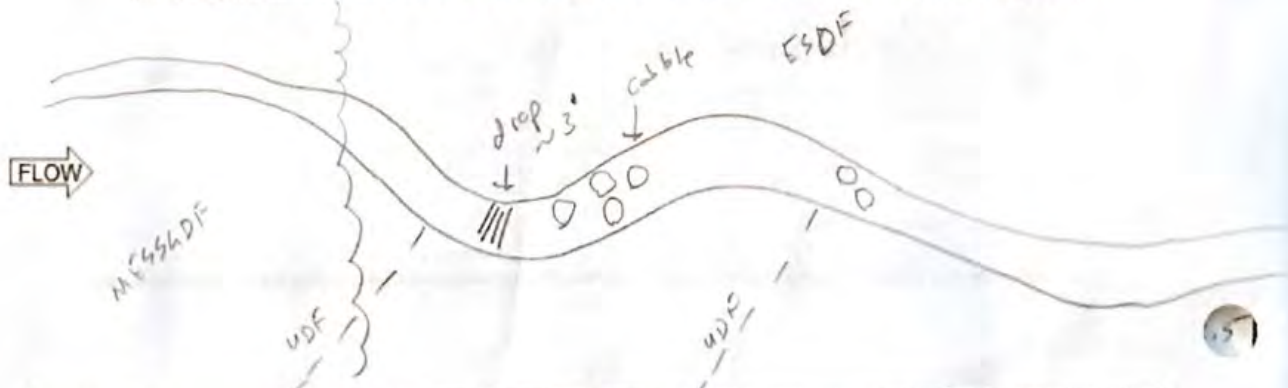
BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N): N Species observed (if known): _____
 Frogs or Tadpoles Observed? (Y/N): N Species observed (if known): _____
 Salamanders Observed? (Y/N): N Species observed (if known): _____
 Aquatic Macroinvertebrates Observed? (Y/N): N Species observed (if known): _____
 Comments Regarding Biology: none observed

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

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



Stream & Location: Bellefonte Extension 138 KV Line Rebuild Project RM: Date: 10/21/06Stream 10 / Little Ice Creek Scorers Full Name & Affiliation: A. Kwalek / Stan BeeRiver Code: - STORET #: Lat./ Long.: 38.4907 182.6157Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

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

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

AMOUNT

Check ONE (Or 2 & average)

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

Comments

Cover
Maximum 20

8

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

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

Comments

Channel
Maximum 20

11.5

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

River right looking downstream

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

Comments

Indicate predominant land use(s) past 100m riparian.
Riparian
Maximum 10

2.25

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Check ONE (ONLY)

Check ONE (Or 2 & average)

Check ALL that apply

<input type="checkbox"/> > 1m [6]	<input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	<input type="checkbox"/> SLOW [1]
<input type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]
<input checked="" type="checkbox"/> 0.4-0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]
<input type="checkbox"/> 0.2-0.4m [1]		<input checked="" type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]
<input type="checkbox"/> < 0.2m [0]		Indicate for reach - pools and riffles.	

Comments

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)Pool /
Current
Maximum 12

5

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

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input checked="" type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]
			<input type="checkbox"/> EXTENSIVE [-1]

Comments

Riffle /
Run
Maximum 8

3.5

6) GRADIENT (29.6 ft/mi) ☐ VERY LOW - LOW [2-4]
DRAINAGE AREA (9.21 mi²) ☐ MODERATE [6-10]
☒ HIGH / VERY HIGH [10-6]%POOL: 15 %GLIDE: 10
%RUN: 50 %RIFFLE: 25Gradient
Maximum 10

8

AJ SAMPL. REACH

Check ALL that apply

Comment RE: Reach consistency/Is reach typical of stream?, R

tion/Observed - Inferred, Other/Sampling observations, Concerns, Access direct etc.

METHOD

- ☐ BOAT
☒ WADE
☐ L. LINE
☐ OTHER

STAGE

1st -sample pass- 2nd

- ☐ HIGH
☒ UP
☐ NORMAL
☐ LOW
☐ DRY

DISTANCE

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

CLARITY

1st -sample pass- 2nd

- ☐ < 20 cm
☒ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/CTB

meters

SECCHI DEPTH

CANOPY

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

CJ RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft**BJ AESTHETICS**

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

DJ MAINTENANCE

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

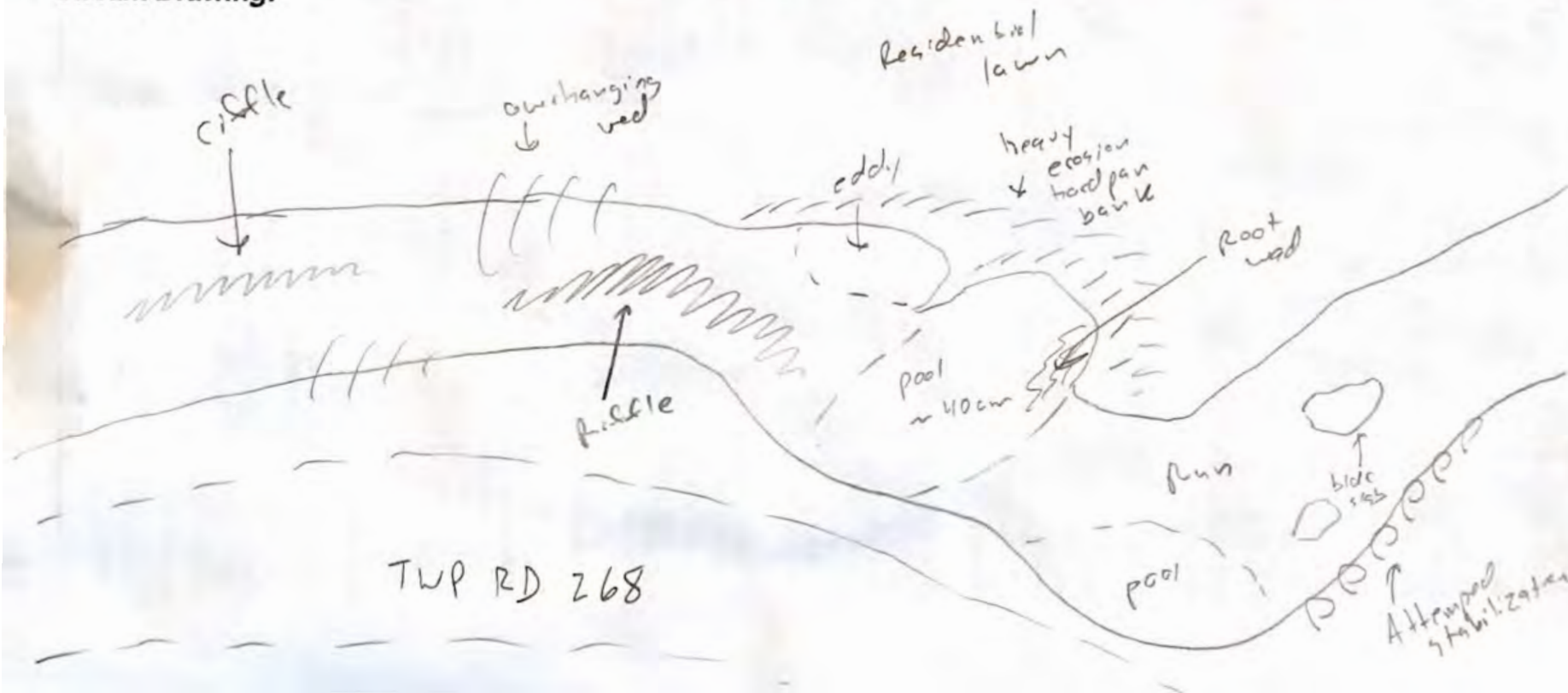
Circle some & COMMENT

EJ ISSUES

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

FJ MEASUREMENTS

- \bar{x} width
 \bar{x} depth
 max. depth
 \bar{x} bankfull width
 bankfull \bar{x} depth
 W/D ratio
 bankfull max. depth
 floodprone x^2 width
 entrench. ratio
 Legacy Tree:

Stream Drawing:

A K M D S 11



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

13

SITE NAME/LOCATION Bellefonte Extension 138 kV Line Rebuild Project
SITE NUMBER Stream 11 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) <1 mi²
LENGTH OF STREAM REACH (ft) 200 LAT 38.490570 LONG -82.620086 RIVER MILE
DATE 10/21/20 SCORER ATK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY <u>two</u> predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points Substrate Max = 40 8 A + B
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts] <input type="checkbox"/> BOULDER (>256 mm) [16 pts] <input type="checkbox"/> BEDROCK [16 pts] <input type="checkbox"/> COBBLE (65-256 mm) [12 pts] <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts] <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> SILT [3 pts] <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts] <input type="checkbox"/> FINE DETRITUS [3 pts] <input type="checkbox"/> CLAY or HARDPAN [0 pts] <input type="checkbox"/> MUCK [0 pts] <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> 30 <input type="checkbox"/> 40 <input type="checkbox"/> 50 <input type="checkbox"/> 60 <input type="checkbox"/> 70 <input type="checkbox"/> 80	<input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> 30 <input type="checkbox"/> 40 <input type="checkbox"/> 50 <input type="checkbox"/> 60 <input type="checkbox"/> 70 <input type="checkbox"/> 80	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>5</u> (A) <u>3</u>		TOTAL NUMBER OF SUBSTRATE TYPES: (B) <u>5</u>		
2. Maximum Pool Depth (Measure the <u>maximum</u> pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):				Pool Depth Max = 30 0
<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts] <input type="checkbox"/> 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]				
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>0</u>				Bankfull Width Max = 30 5
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements). (Check ONLY one box):				
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]				
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters) <u>6.5</u>				

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)

FLOODPLAIN QUALITY (Most Predominant per Bank)

L R
☒ ☒
☐ ☐
☐ ☐
☐ ☐

Wide >10m
Moderate 5-10m
Narrow <5m
None

L R
☐ ☒
☐ ☒
☐ ☐
☐ ☐

Mature Forest, Wetland
Immature Forest, Shrub or Old Field
Residential, Park, New Field
Fenced Pasture

L R
☐ ☐
☐ ☐
☐ ☐
☐ ☐

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

COMMENTS

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

☐ ☐

Stream Flowing
Subsurface flow with isolated pools (interstitial)

☐ ☒

Moist Channel, isolated pools, no flow (intermittent)
Dry channel, no water (ephemeral)

COMMENTS

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

☐ ☒

None
0.5

☐ 1.0
☐ 1.5

☐ 2.0
☐ 2.5

☐ 3.0
☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 %/100 ft)

☐ Flat to Moderate

☐ Moderate (2 %/100 ft)

☐ Moderate to Severe

☒ Severe (10 %/100 ft)

OHWHM = 0.75' A = 0.75'
DZB = 1.5' A = 0.75'

stream 11

ADDITIONAL STREAM INFORMATION (This information must also be completed)

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Little Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Catlettsburg NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation: 10/21/20 Quantity: _____

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N) N Canopy (% open): 5

Were samples collected for water chemistry? (Y/N) _____ Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) / Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) _____ Species observed (if known): _____

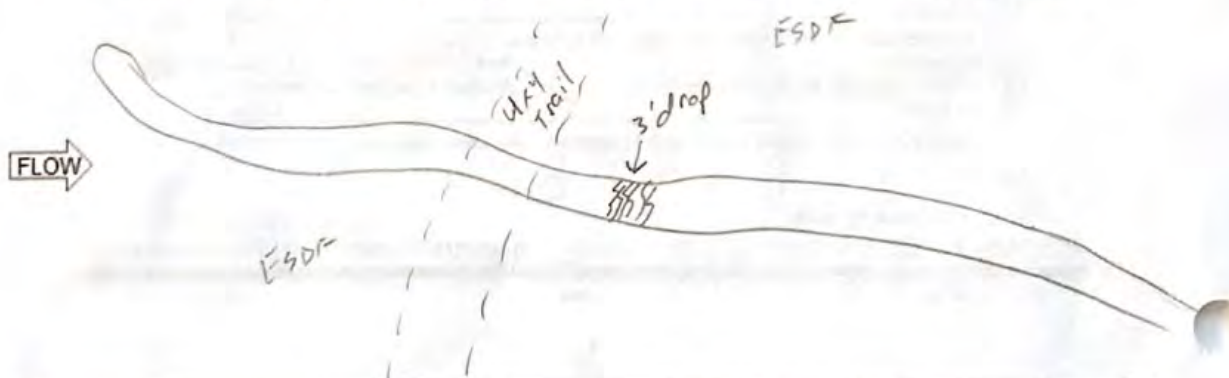
Salamanders Observed? (Y/N) / Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) / Species observed (if known): _____

Comments Regarding Biology: _____

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

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



AKMDS12



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

13

SITE NAME/LOCATION Bellefonte Extension 138 kV Line Rebuild Project
SITE NUMBER 470001 RIVER BASIN 0710 RIVER CODE 000 DRAINAGE AREA (mi²) 41.2
LENGTH OF STREAM REACH (ft) 200 LAT 38.490609 LONG -82.620552 RIVER MILE 0.75
DATE 10/21/20 SCORER ATK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points Substrate Max = 40 8 A + B																												
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COMMENTS <u></u> AVERAGE BANKFULL WIDTH (meters): <u>0.5</u>																																

OH = 0.75' ↑ 0.75'
TOB = 16' ↑ 0.75'

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (10 ft/100 ft)
---	---	---	---	---

stream 12

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Little Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Catlettsburg NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Lawrence Township/City: Cog / Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/20 Quantity: 0.15

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 5

Were samples collected for water chemistry? (Y/N): Y Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

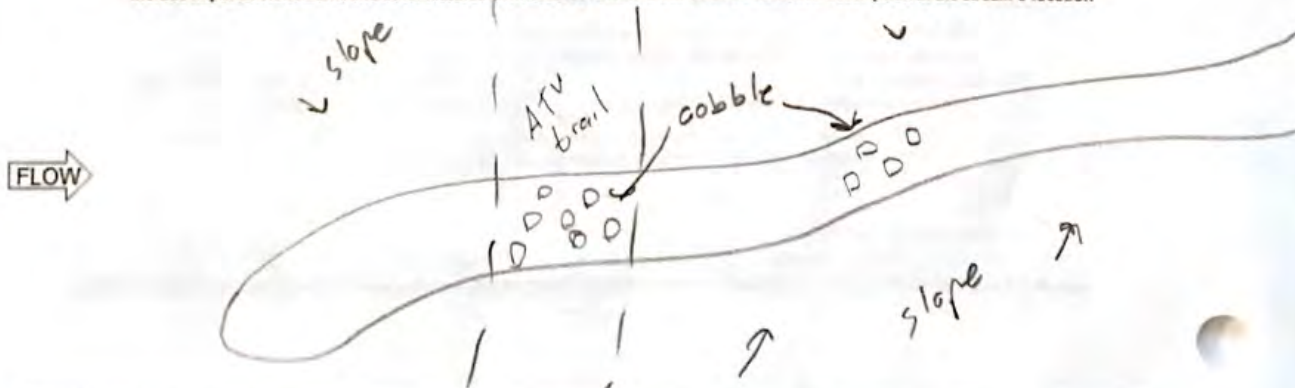
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: No H₂O

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

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



Akmds13



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

44

SITE NAME/LOCATION Bellefonte Extension 138 KV Line Rebuild Project
SITE NUMBER stream 13 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) 41mi²
LENGTH OF STREAM REACH (ft) LAT 38.491069 LONG -82.623655 RIVER MILE
DATE 10/21/20 SCORER ATK COMMENTS W/in logging area

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B				HHEI Metric Points Substrate Max = 40 14 A + B																												
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COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters) <u>1.25</u>																																

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS

FLOODPLAIN QUALITY (Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS INT

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

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

STREAM GRADIENT ESTIMATE

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

stream 13

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed)

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Little Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Latleetsburg NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/20 Quantity: _____

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 60

Were samples collected for water chemistry? (Y/N): _____ Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) 17 Dissolved Oxygen (mg/l) ✓ pH (S.U.) 8.2 Conductivity (umhos/cm) ✓

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

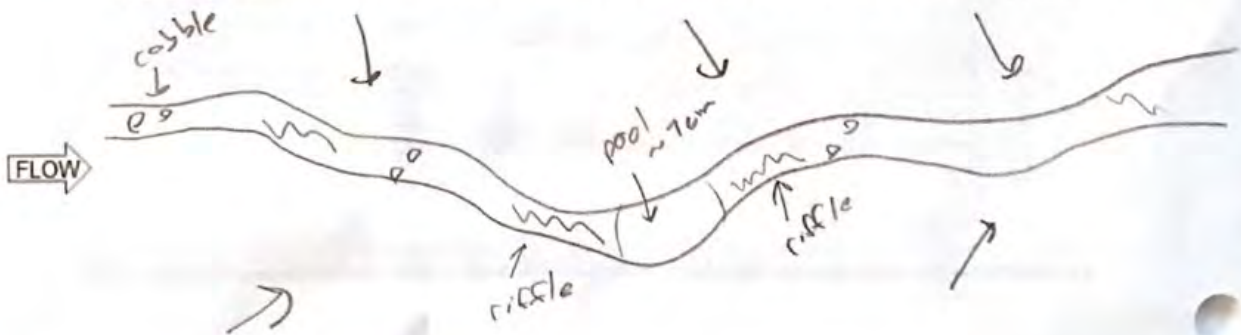
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): Caddisfly cases, crayfish

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

27

SITE NAME/LOCATION Bellefonte Extension 138 KV Line Rebuild Project
SITE NUMBER Stream 14 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) <1 mi²
LENGTH OF STREAM REACH (ft) 200 LAT 38.941550 LONG -82.625271 RIVER MILE
DATE 10/21/20 SCORER ATK COMMENTS

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

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

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<input type="checkbox"/> MUCK [0 pts]																														
<input type="checkbox"/> ARTIFICIAL [3 pts]																														
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) <div style="border: 1px solid black; padding: 2px;">3</div>		(B) <div style="border: 1px solid black; padding: 2px;">4</div>																												
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <div style="border: 1px solid black; padding: 2px;">3</div>		TOTAL NUMBER OF SUBSTRATE TYPES: <div style="border: 1px solid black; padding: 2px;">4</div>																												
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box).				Pool Depth Max = 30 <div style="border: 1px solid black; padding: 5px; text-align: center;">5</div>																										
<table border="1"> <tbody> <tr><td><input type="checkbox"/> > 30 centimeters [20 pts]</td><td><input type="checkbox"/> 5 cm - 10 cm [15 pts]</td></tr> <tr><td><input type="checkbox"/> > 22.5 - 30 cm [30 pts]</td><td><input checked="" type="checkbox"/> < 5 cm [5 pts]</td></tr> <tr><td><input type="checkbox"/> > 10 - 22.5 cm [25 pts]</td><td><input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]</td></tr> </tbody> </table>					<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> 5 cm - 10 cm [15 pts]	<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]	<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]																				
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> 5 cm - 10 cm [15 pts]																													
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]																													
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]																													
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <div style="border: 1px solid black; padding: 2px;">4.5</div>																														
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements). (Check ONLY one box):				Bankfull Width Max=30 <div style="border: 1px solid black; padding: 5px; text-align: center;">15</div>																										
<table border="1"> <tbody> <tr><td><input type="checkbox"/> > 4.0 meters (> 13') [30 pts]</td><td><input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]</td></tr> <tr><td><input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]</td><td><input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]</td></tr> <tr><td><input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]</td><td></td></tr> </tbody> </table>					<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]	<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																					
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]																													
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]																													
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																														
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters) <div style="border: 1px solid black; padding: 2px;">1.2</div>																														

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY • NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m	Mature Forest, Wetland	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	None	<input type="checkbox"/>	Mining or Construction
<input type="checkbox"/>		<input type="checkbox"/>	
<input type="checkbox"/>		<input type="checkbox"/>	

COMMENTS

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS INT

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
---	---	---	--	--

Stream 14

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Little Ice creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Ashland NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/20 Quantity: 0.15"
 Photo-documentation Notes: _____
 Elevated Turbidity? (Y/N): N Canopy (% open): 40
 Were samples collected for water chemistry? (Y/N): _____ Lab Sample # or ID (attach results): _____
 Field Measures Temp (°C) 16 Dissolved Oxygen (mg/l) _____ pH (S.U.) 7.5 Conductivity (umhos/cm) _____
 Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____
 Additional comments/description of pollution impacts: _____

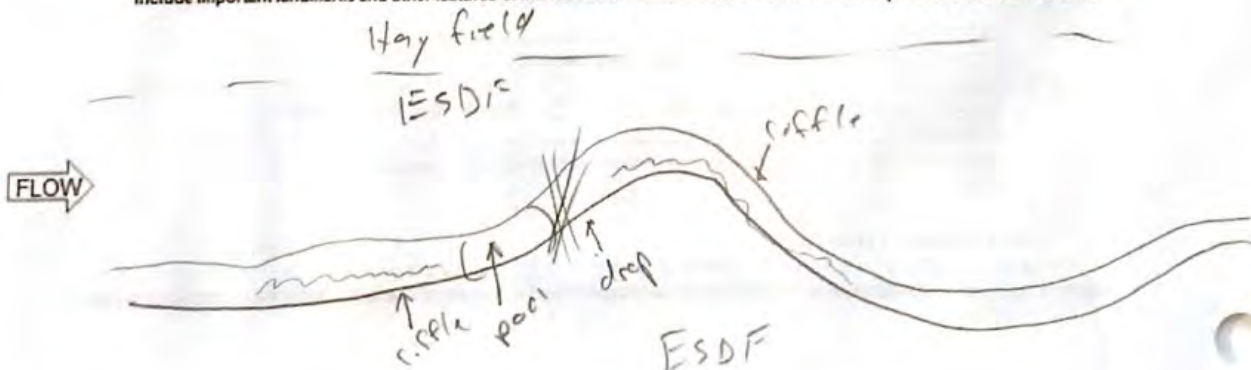
BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____
 Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____
 Salamanders Observed? (Y/N) N Species observed (if known): _____
 Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): Corydoras
 Comments Regarding Biology: _____

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

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



AKMDS15



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

56

SITE NAME/LOCATION Bellefonte Extension 138 KV Line Rebuild Project
SITE NUMBER 15 RIVER BASIN 01210 RIVER CODE DRAINAGE AREA (mi²) 1.1
LENGTH OF STREAM REACH (ft) 200 LAT 38.494064 LONG -82.631270 RIVER MILE
DATE 10/21/20 SCORER ATK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B				HHEI Metric Points Substrate Max = 40	
TYPE	PERCENT	TYPE	PERCENT		
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pt]		<div style="border: 1px solid black; padding: 5px; text-align: center;">21</div>	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]			
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]			
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pt]			
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 pts]			
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	25	<input type="checkbox"/> ARTIFICIAL [3 pts]			
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>15</u>		(A) <u>15</u>	(B) <u>7</u>		
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <u>15</u> TOTAL NUMBER OF SUBSTRATE TYPES: <u>7</u>					
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):					Pool Depth Max = 30
<input type="checkbox"/> > 30 centimeters [20 pts] <input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> < 5 cm [5pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts] <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]					
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>9</u>				<div style="border: 1px solid black; padding: 5px; text-align: center;">15</div>	
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):					
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 6") [15 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] <input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]					
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters): <u>2</u>				<div style="border: 1px solid black; padding: 5px; text-align: center;">20</div>	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY • NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input type="checkbox"/> Wide >10m	<input type="checkbox"/>	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/>	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input checked="" type="checkbox"/> Narrow <5m	<input checked="" type="checkbox"/>	<input type="checkbox"/> Residential Park, New Field
<input type="checkbox"/>	<input type="checkbox"/> None	<input type="checkbox"/>	<input type="checkbox"/> Fenced Pasture
		<input type="checkbox"/>	<input type="checkbox"/> Conservation Tillage
		<input type="checkbox"/>	<input type="checkbox"/> Urban or Industrial
		<input type="checkbox"/>	<input type="checkbox"/> Open Pasture, Row Crop
		<input type="checkbox"/>	<input type="checkbox"/> Mining or Construction

COMMENTS

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS IR

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
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stream 15

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed)

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Little Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Ashland NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Lawrence Township/City: Cool Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/20 Quantity: 0.15"

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 50

Were samples collected for water chemistry? (Y/N): _____ Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) 15.7 Dissolved Oxygen (mg/l) ✓ pH (S.U.) 7.7 Conductivity (umhos/cm) ✓

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) Y Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

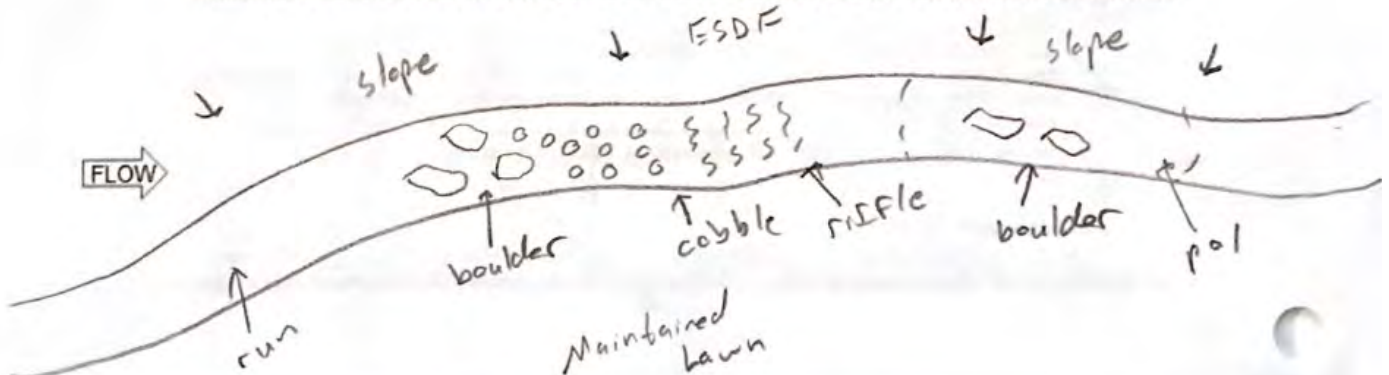
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): Caddisfly cases

Comments Regarding Biology: _____

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

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



AKMDS16



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

29

SITE NAME/LOCATION Bellefonte Extension 138kV Line Rebuild Project
SITE NUMBER stream 16 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) 2.1
LENGTH OF STREAM REACH (ft) 90 LAT 38.494845 LONG -82.633345 RIVER MILE
DATE 10/24/20 SCORER ATK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B				HHEI Metric Points Substrate Max = 40 9 A + B
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDG SLABS [16 pts] <input type="checkbox"/> BOULDER (>256 mm) [16 pts] <input type="checkbox"/> BEDROCK [16 pts] <input type="checkbox"/> COBBLE (65-256 mm) [12 pts] <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts] <input type="checkbox"/> SAND (<2 mm) [6 pts]	<u> </u> <u>5</u> <u> </u> <u>10</u> <u>15</u> <u>10</u>	<input checked="" type="checkbox"/> SILT [3 pt] <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts] <input type="checkbox"/> FINE DETRITUS [3 pts] <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt] <input type="checkbox"/> MUCK [0 pts] <input type="checkbox"/> ARTIFICIAL [3 pts]	<u>20</u> <u> </u> <u> </u> <u>40</u> <u> </u>	
Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock <u>15</u>		(A) <u>3</u> (B) <u>6</u>		
SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: <u>3</u> TOTAL NUMBER OF SUBSTRATE TYPES: <u>6</u>				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)				Pool Depth Max = 30 5
<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts] <input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts] <input checked="" type="checkbox"/> < 5 cm [5 pts] <input type="checkbox"/> NO WATER OR MOST CHANNEL [0 pts]				
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>4.5</u>				
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):				Bankfull Width Max = 30 15
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] <input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]				
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters): <u>1.2</u>				

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Wide >10m		Mature Forest, Wetland	Conservation Tillage
Moderate 5-10m		Immature Forest, Shrub or Old Field	Urban or Industrial
Narrow <5m		Residential, Park, New Field	Open Pasture, Row Crop
None		Fenced Pasture	Mining or Construction

COMMENTS

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS INT

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
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Stream 16

ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EVH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Asbland NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/20 Quantity: 0.15"

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) 14.5 Dissolved Oxygen (mg/l) _____ pH (S.U.) 8.2 Conductivity (umhos/cm) 1

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

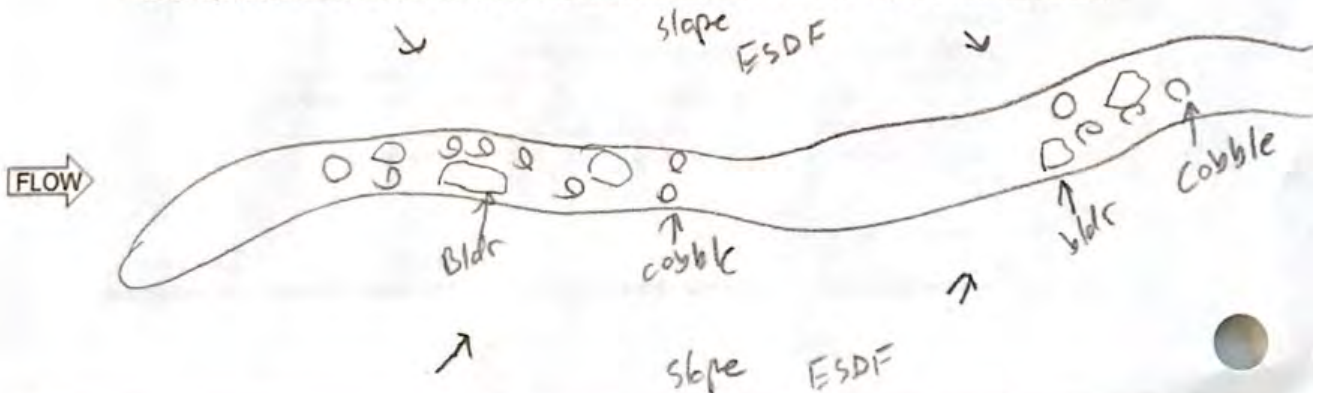
Salamanders Observed? (Y/N) Y Species observed (if known): Dusky

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

42

SITE NAME/LOCATION Bellefonte Extension 138 kV Line Rebuild Project
SITE NUMBER 17 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) 2.1
LENGTH OF STREAM REACH (ft) 200 LAT 38.498847 LONG -82.651798 RIVER MILE
DATE 7/17/20 SCORER ATK COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points Substrate Max = 40 12 A + B
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pt]	20	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	50	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]		
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pt]		
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 pts]	15	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 pts]		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>0</u> (A) <u>6</u> TOTAL NUMBER OF SUBSTRATE TYPES: (B) <u>6</u>				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box).				Pool Depth Max = 30 15
<input type="checkbox"/> > 30 centimeters [20 pts] <input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts] <input type="checkbox"/> 22.5 - 30 cm [30 pts] <input type="checkbox"/> < 5 cm [5pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts] <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]				
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>8.5</u>				
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements). (Check ONLY one box):				Bankfull Width Max=30 15
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]				
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters) <u>1.3</u>				

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage	
<input type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/> Immature Forest, Shrub or Old Field	<input type="checkbox"/> Urban or Industrial	
<input checked="" type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Open Pasture, Row Crop	
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction	

COMMENTS

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS INT

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
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stream 17

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ohio River Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Catlettsburg NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/17/20 Quantity: 0.29"

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 20

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) 3.5° Dissolved Oxygen (mg/l) ✓ pH (S.U.) 6.8 Conductivity (umhos/cm) ✓

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

Additional comments/description of pollution impacts: Trash and parking lot/road runoff

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

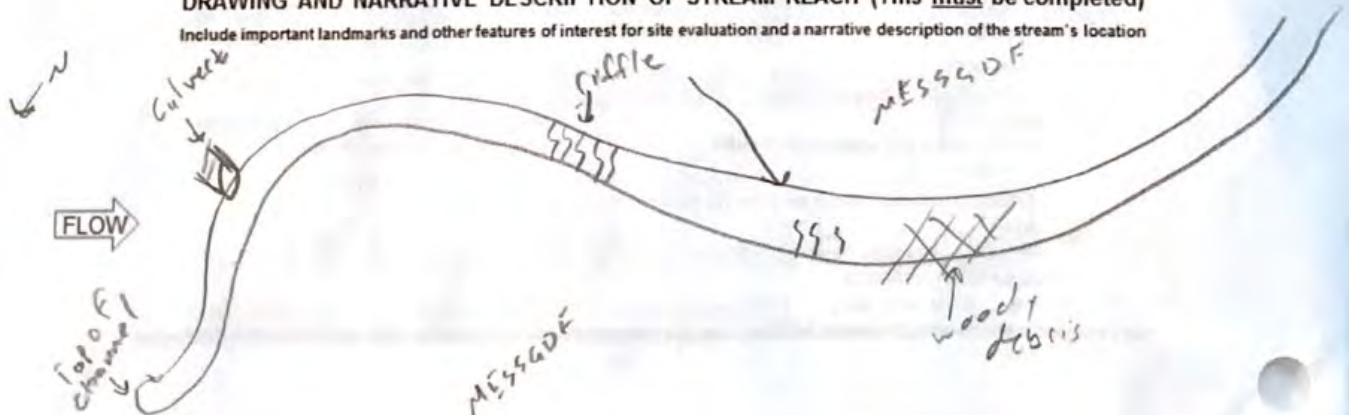
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3)

42

SITE NAME/LOCATION Bellefonte Extension 138 kV Line Rebuild Project
SITE NUMBER Stream 18 RIVER BASIN Ohio RIVER CODE DRAINAGE AREA (mi²) 0.1 mi²
LENGTH OF STREAM REACH (ft) 200 LAT 38.492009 LONG -82.614727 RIVER MILE
DATE 12/18/20 SCORER ASJ COMMENTS

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

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 5). Final metric score is sum of boxes A & B				HHEI Metric Points Substrate Max = 40 12 A + B
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDG SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pt]	50	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]		
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pt]		
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 pts]	5	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 pts]		
Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock <u>0</u> (A) <u>6</u> (B) <u>6</u>				
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <u>6</u> TOTAL NUMBER OF SUBSTRATE TYPES: <u>6</u>				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):				Pool Depth Max = 30 15
<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts]			
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]			
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]			
COMMENTS <u> </u> MAXIMUM POOL DEPTH (centimeters): <u>7</u>				
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements). (Check ONLY one box):				Bankfull Width Max=30 15
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]			
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]			
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]				
COMMENTS <u> </u> AVERAGE BANKFULL WIDTH (meters): <u>1.2</u>				

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage	
<input type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/> Immature Forest, Shrub or Old Field	<input type="checkbox"/> Urban or Industrial	
<input checked="" type="checkbox"/> Narrow <5m	<input checked="" type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Open Pasture, Row Crop	
<input checked="" type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction	

COMMENTS

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS INT

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
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stream 18

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Little Ice Creek Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Catlettsburg NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
 County: Lawrence Township/City: Coal Grove

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/17/20 Quantity: 0.29"
 Photo-documentation Notes: _____
 Elevated Turbidity? (Y/N): N Canopy (% open): 60%
 Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____
 Field Measures: Temp (°C) 3° Dissolved Oxygen (mg/l) ✓ pH (S.U.) 8.3 Conductivity (umhos/cm) ✓
 Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____
 Additional comments/description of pollution impacts: Trash

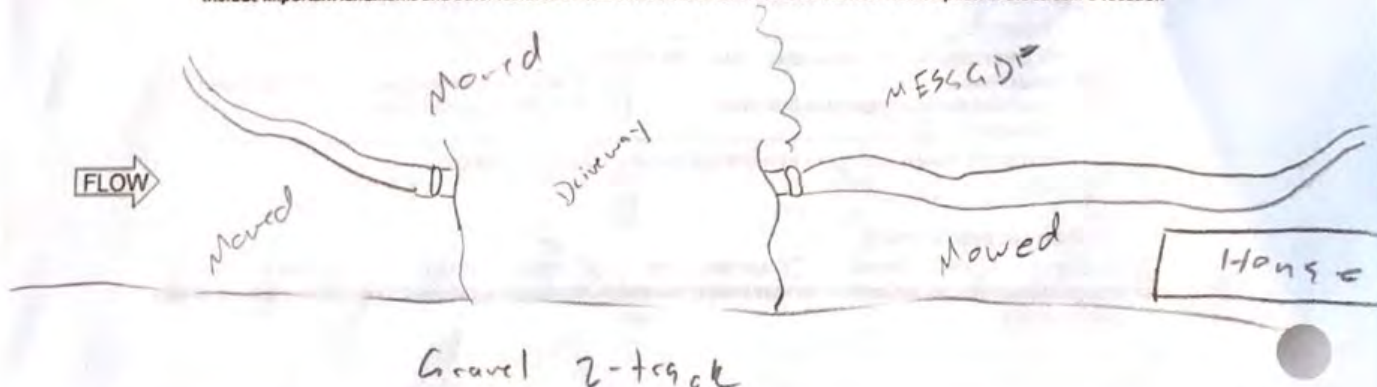
BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____
 Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____
 Salamanders Observed? (Y/N) N Species observed (if known): _____
 Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): _____
 Comments Regarding Biology: _____

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

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



This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

5/27/2021 1:38:33 PM

in

Case No(s). 21-0111-EL-BLN

Summary: Notice Letter of Notification Application for the Bellefonte Extension 138 kV Line Rebuild Project electronically filed by Tanner Wolfram on behalf of AEP Ohio Transmission Company, Inc.