



Legal Department

American Electric Power
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Columbus, OH 43215-2373
AEP.com

May 31, 2018

Chairman Asim Z. Haque
Ohio Power Siting Board
180 East Broad Street
Columbus, Ohio 43215

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**Re: In the Matter of the Letter of Notification for the
Adjustment to Heppner-Rhodes 138 kV Transmission Line Rebuild
Project, Case No. 18-0872-EL-BLN
Request for Expedited Treatment**

Dear Chairman Haque,

Attached please find a copy of the Letter of Notification (LON) for the above-referenced project by AEP Ohio Transmission Company, Inc. (AEP Ohio Transco). This filing and notice is in accordance with O.A.C. 4906-6-05.

A copy of this filing will also be submitted to the executive director or the executive director's designee. A copy will be provided to the Board Staff via electronic message. The Company will also submit a check in the amount of \$2,000 to the Treasurer, State of Ohio, for Fund 5610 for the expedited fees.

If you have any questions, please do not hesitate to contact me.

Respectfully submitted,

/s/ Christen Blend

Christen Blend (0086881), Counsel of Record
Hector Garcia (0084517)
Counsel for AEP Ohio Transmission Company, Inc.

cc. John Jones, Counsel OPSB Staff
Jon Pawley, OPSB Staff

**LETTER OF
NOTIFICATION
For Adjustment to
Heppner-Rhodes 138
kV Transmission Line
Rebuild Project**



PUCO Case No. 18-0872-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 31, 2018

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER-RHODES 138 KV
TRANSMISSION LINE REBUILD PROJECT**

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LETTER OF NOTIFICATION

**AEP Ohio Transmission Company, Inc.'s
Heppner-Rhodes 138 kV Transmission Line Rebuild Project**

4906-6-05

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

4906-6-05(B) General Information

B(1) Project Description

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

AEP Ohio Transco proposes an adjustment to the approved Heppner-Rhodes 138 kV Transmission Line Rebuild Project (Case Number 17-0807-EL-BLN), which will be referred to as Adjustment to Heppner-Rhodes 138 kV Transmission Line Rebuild Project ("Project"). The Project is located in Coal and Lick Townships, Jackson County, Ohio. The Project involves building approximately 0.2 miles of 138 kV transmission line between the Poston-Lick 138 kV transmission line and the and proposed Rhodes Substation. Figures 1 and 2 show the location of the Project in relation to the surrounding vicinity.

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

1. *New construction, extension, or relocation of single or multiple circuit electric power transmission line(s), or upgrading existing transmission or distributions line(s) for operation at a higher transmission voltage as follows:*

(d) *Line(s) primarily needed to attract or meet the requirements of a specific customer or customers, as follows:*

- ii. *Any portion of the line is on property owned by someone other than the specific customer or applicant.*

The Project has been assigned PUCO Case No. 18-0872-EL-BLN.

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B(2) Statement of Need

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

The existing portion of a current distribution line that is proposed to be rebuilt as the Heppner – Rhodes 138kV Transmission Line was originally constructed in 1926 with wood poles and 4/0 copper conductor. The aging structures and conductor require upgrades to meet AEP Ohio Transco's current transmission facility standards in order to ensure service adequacy and reliability to AEP Ohio Transco's customer, the City of Jackson, which requires significant support due to its population and industry, as well as to other portions of Ross and Jackson Counties. Rebuilding this circuit and constructing the Rhodes 138/69 kV substation, which is the subject of another application, will provide the area a third power source, improving the reliability for customers in the area.

For purposes of PJM Interconnection, LLC Regional Transmission, the proposed facility is a supplemental project that is necessary to renew and modernize the area's aging transmission line infrastructure. The Project will strengthen the 138 kV transmission network in southeast/southern Ohio, support the electrical load required in future economic development in that area, and provide transmission grid reliability and resiliency. This Project was submitted at the PJM RTEP meeting on March 24, 2017 and is included in AEP Ohio Transco's 2018 Long Term Forecast Report (FE-T9, page 8 of 60, see Appendix B). The PJM identifier for the Project is S1342.

B(3) Project Location

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

The location of the Project in relation to existing transmission lines and stations is shown on Figure 1. Figure 2 identified the Project components on a 2015 aerial photograph.

B(4) Alternatives Considered

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

AEP Ohio Transco previously filed an LON for the Heppner-Rhodes 138 kV transmission line in Case No. 17-0807-EL-BLN. That application was automatically approved on February 13, 2018. See Case No. 17-0807-EL-BLN, Staff Report of Investigation at 1 (Feb. 6, 2018). After the automatic approval date for that project, AEP Ohio Transco determined that the initial, approved alignment for the Heppner-Rhodes 138 kV transmission line, specifically the alignment in the vicinity of the Rhodes Substation, was not feasible. Due to the increased voltage of the new transmission line and distribution underbuild, AEP Ohio Transco determined that there is not enough clearance on the existing Poston-Lick 138 kV transmission line to allow

AEP Ohio Transmission Company, Inc.

Adjustment to Heppner-Rhodes 138 kV Transmission Line
Rebuild Project
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for the Heppner-Rhodes 138 kV transmission line to cross underneath. Therefore, the Company has proposed an adjustment to the Heppner-Rhodes 138 kV transmission line, which is the subject of this Project filing. The Project parallels and utilizes a portion of the existing Poston-Lick 138 kV transmission right-of-way (ROW). No other alternatives were considered for the Project. Significant negative socioeconomic, ecological, or construction impacts from the proposed adjustment are not expected, as the new line will be adjacent and utilize a portion of the existing Poston-Lick 138 kV transmission line ROW.

B(5) Public Information Program

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

AEP Ohio Transco informs affected property owners and tenants about this Project through several different mediums. Within seven days after its files this LON, AEP Ohio Transco will issue a public notice in a newspaper of general circulation in the Project area. The notice will comply with all requirements of O.A.C. 4906-6-08(A)(1)-(6). Further, AEP Ohio Transco will mail a letter, via first class mail, to affected landowners, tenants, contiguous owners, and any other landowner AEP Ohio Transco approached for an easement necessary for the construction, operation, or maintenance of the Project. That letter will comply with all the requirements of O.A.C. 4906-6-08(B). AEP Ohio Transco also maintains a website (<http://aeptransmission.com/ohio/>) which provides the public access to an electronic copy of this LON and the public notice for this LON. A paper copy of the LON will be provided to Jackson County Board of Commissioners, the Jackson County Engineer, Jackson County Soil and Water Conservation District, Coal Township Trustees, the Coal Township Fiscal Officer, Lick Township Board of Trustees, City of Jackson Mayor Randy Heath, and City of Jackson Councilman Eric Brown concurrently with its submittal to OPSB. A paper copy of the LON will also be provided to the Jackson City Library. AEP Ohio Transco retains ROW land agents who discuss project timelines, construction, and restoration activities with affected owners and tenants.

B(6) Construction Schedule

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

AEP Ohio Transco anticipates that construction of the Project will begin in the fall of 2018, and the in-service date of the Project will be approximately May 2019.

B(7) Area Map

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

Figure 1 identifies the location of the Project area on a United States Geological Survey 1:24,000 quadrangle map. Figure 2 is an aerial map of the Project area.

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To visit the Project from Columbus, Ohio, take US-23 S toward Circleville for approximately 40 miles. Continue onto US-35 E/US-50 E toward Jackson/Athens for approximately 28 miles, take the ramp right for OH-32/OH-124 and turn left. After 3.0 miles, turn left onto Rice Road, then turn right onto Fairgreens Road. Drive 1.5 miles and turn left. The eastern terminus of the Project (proposed Rhodes Substation) will be 0.2 miles on the left side of Fairgreens Road. The approximate address of the proposed Rhodes Substation is 3103 Fairgreens Road, Jackson, Ohio 45640 at latitude 39.0824, longitude -82.5492.

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 generally be constructed adjacent to the existing Poston-Lick 138 kV transmission line ROW. Provided below is a table of parcel numbers and an indication of if the easement/option necessary to construct and operate the facility has been obtained.

Property Parcel Number	Easement/ Option Obtained (Yes/No)*
B020020017900	No
B020020017600	Yes
H130010000200	Yes

*AEP Ohio Transco may supplement its existing rights under certain blanket easements identified above

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 will include the following:

Voltage:	138kV
Conductors:	1033.5 kcmil 54/7 Strands CURLEW ACSR
Static Wire:	7#10 Alumoweld 7 Strands Alumoweld
Insulators:	25 Kip Polymer Suspension & 50 kip Polymer Strain
ROW Width:	100 Feet
Structure Types:	(2) Guyed 3-pole dead-end (1) H-frame tangents

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B(9)(b) Electric and Magnetic Fields

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

B(9)(b)(i) Calculated Electric and Magnetic Field Strength Levels

i) Calculated Electric and Magnetic Field Levels

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

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

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

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

B(9)(b)(ii)(c) Project Cost

The estimated capital cost of the project.

The capital costs estimate for the Project is approximately \$400,000. However, the cost estimate for the entire Heppner-Rhodes Project including the proposed adjustment, comprised of applicable tangible and capital costs, is approximately \$7,000,000.

B(10) Social and Economic Impacts

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

B(10)(a) Operating 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 Coal and Lick Townships, Jackson County, Ohio; outside the city limits of the City of Jackson. Land uses in the Project area consists of deciduous forest and open land.

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.

The Project is not located within a registered agricultural district lands, based on May 15, 2018 coordination with the Jackson County Auditor's Office. Additionally, the Project area does not contain any active agricultural row crop land.

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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.

In April and May 2018, AEP Ohio Transco's consultant completed an addendum to the previously conducted Phase I cultural resource investigations for the Project, which will be provided to OPSB under separate cover. The field investigations were conducted for the Project only in areas outside of the previous survey conducted for the initial filing of the Heppner-Rhodes application.

The archaeological field reconnaissance determined that the majority of the Project area is situated in fallow and forested conditions, all of which are located in steeply sloping areas. Visual inspection of the areas and the soils survey indicated that the landforms have greater than 15 percent slope. There were no cultural materials identified in the Project area and the planned work will not impact/involve any significant cultural resources or land marks. No further archaeological work is considered to be necessary for the Project. The Ohio History Connection concurrence letters for the Project and the initial Heppner-Rhodes Phase I cultural resource investigations can be found in Appendix C.

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

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

A Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000005, and AEP Ohio Transco will implement and maintain best management practices (BMPs), as outlined in the project-specific Storm Water Pollution Prevention Plan (SWPPP), to minimize erosion and control sediment to protect surface water quality during storm events. The Project will temporarily impact streams and wetlands during construction, however, it is anticipated that the Project will meet the terms and conditions of the pre-authorized Section 401 Water Quality Certification from the OEPA.

The Project is not located within a Federal Emergency Management Agency ("FEMA") 100-year floodplain area. Therefore, no floodplain permitting is required for the Project.

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

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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 United States Fish and Wildlife Service (“USFWS”) *Federally Listed Species by Ohio Counties May 2017* (available at <https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyListMay2017.pdf>) was reviewed to determine the threatened and endangered species known to occur in Jackson County. This USFWS publication lists the following species as occurring within Jackson County: Indiana bat (*Myotis sodalis*; federally endangered), northern long-eared bat (*Myotis septentrionalis*; federally threatened), running buffalo clover (*trifolium stoloniferum*; federally endangered), timber rattlesnake (*Crotalus horridus*; federal species of concern), and bald eagle (*Haliaeetus leucocephalus*; federal species of concern). As part of the ecological study completed for the the approved Heppner-Rhodes 138 kV Transmission Line Rebuild Project (Case Number 17-0807-EL-BLN), which covers the Project area, 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 June 2, 2017 response letter from USFWS (see Appendix D) indicated that the proposed Project is within the range of the Indiana bat and northern long-eared bat in Ohio, but if tree clearing occurs between October 1 and March 31, they do not anticipate the Project having any adverse effects to these species or any other federally listed endangered, threatened, proposed, or candidate species. The Project will require tree clearing within the new ROW. AEP Ohio Transco anticipates tree clearing associated with the Project will occur between October 1 and March 31.

Several state-listed threatened species, endangered species, and species of concern are listed by the ODNR (available at <http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/species%20and%20habitats/state-listed%20species/jackson.pdf>) as occurring, or potentially occurring in Jackson County. These state-listed species are addressed in detail in the Ecological Survey Report included in Appendix D.

A coordination letter was submitted to the Ohio Department of Natural Resources (“ODNR”), Division of Wildlife (“DOW”) Natural Heritage Program (“NHP”) in May 2017, for the approved Heppner-Rhodes 138 kV Transmission Line Rebuild Project (Case Number 17-0807-EL-BLN), which covers the Project area. The letter was seeking an environmental review of the Project for potential impacts on state-listed and federally-listed threatened or endangered species. The October 20, 2017 response letter indicated (Project ID 17-638) that the Cerulean Warbler (*Setophaga cerulea*), a state and federal species of concern has records within a one-mile radius of the Project area. However, impacts to the nesting Cerulean Warbler are not anticipated as tree clearing is anticipated to be completed outside of the species’ nesting season. The response letter is also within the range of the Indiana bat, a state endangered and federally endangered species, but if tree clearing occurs between October 1 and March 31, the ODNR DOW does not anticipate the Project having any adverse effects to the Indiana bat. The Project is also located within the range of the following state listed species: little spectaclecase (*Villosa lienosa*), Ohio lamprey (*Ichthyomyzon bdellium*), lake chubsucker (*Erimyzon sucetta*), timber rattlesnake (*Crotalus horridus*

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horridus), Kirtland's snake (*Clonophis kirtlandii*), mud salamander (*Pseudotriton montanus*), and black bear (*Ursus americanus*). In regards to the little spectaclecase, the Project is not likely to impact this species due to the Project location and that there is no in-water work proposed in a perennial stream of sufficient size. For the Ohio lamprey and lake chubsucker, the DOW recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to these indigenous aquatic species and their habitat; these species will not be impacted as no instream work is proposed for the Project. As for the remaining species, the Project is not likely to impact the timber rattlesnake, Kirtland's snake, mud salamander, and black bear due to the Project location, type of habitat along the Project route and within the vicinity of the Project route, or the mobility of the species per the ODNR.

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 Project area is within the area previously coordinated with the ODNR and USFWS as part of the the approved Heppner-Rhodes 138 kV Transmission Line Rebuild Project (Case Number 17-0807-EL-BLN). The ODNR DOW NHP responded in a letter dated October 20, 2017 (Project ID 17-638) indicating that the Coalton Wildlife Area (managed by the ODNR DOW) is located within a one-mile radius of the Project area. The Coalton Wilfe Area is a 1,729 acre tract of land managed for public hunting and fishing and is located approximately 1,800 feet north of the proposed Heppner Station. The Colaton Wildlife Area will not be impacted by the Project. The USFWS Columbus Ecological Services Office responded in an email dated may 31, 2017 (Project ID 03E15000-2017-TA-1326) indicating that there are no federal wilderness areas, wildlife reguges, or designated critical habitat within the vicinity of the Project area. Consultation with the ODNR NHP and USFWS is provided in Appendix D.

No properties identified in the National Conservation Easement Database (<http://www.conservationeasement.us>) were identified in the Project vicinity.

The FEMA Flood Insurance Rate Map was reviewed to identify any floodplains/flood hazard areas that have been mapped within the Project area (specifically, map number 39079C0160K). Based on this mapping, no mapped FEMA floodplains are located in the Project area.

A review of the National Wetlands Inventory ("NWI") database indicated that there were no NWI-mapped wetlands identified within the Project area. Wetland and stream delineation field surveys were completed for the initial Heppner-Rhodes project by AEP Ohio Transco's consultant in July and December 2017 and revised to include the adjustment to the Heppner-Rhodes line in April 2018. During the April 2018 survey, one (1) wetland (W010) was expanded within the Project area. One (1) wetland and one (1) stream were identified within the Project area. The results of the wetland and stream delineations for the initial

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER-RHODES 138 KV
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Heppner-Rhodes project, as well as a revised map showing the expanded wetland within the Project area, are presented in the Ecological Survey Report included in Appendix D.

B(10)(g) Unusual Conditions

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

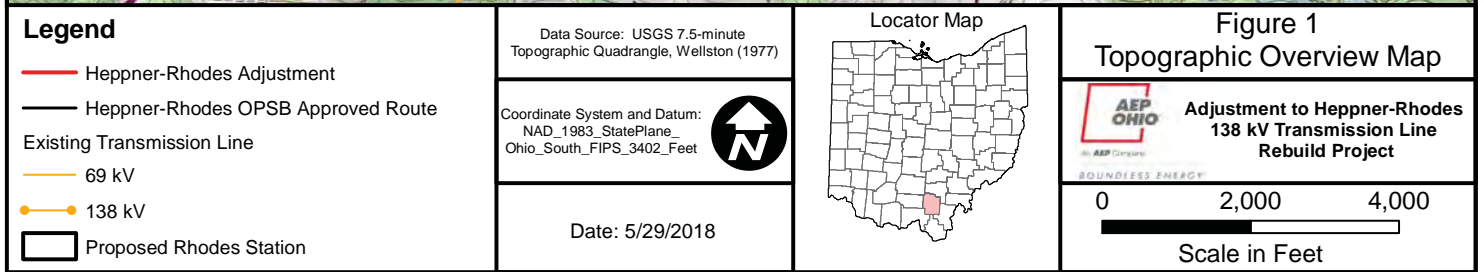
To the best of AEP Ohio Transco's knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER-RHODES 138 KV TRANSMISSION
LINE REBUILD PROJECT**

Appendix A Project Maps
May 2018

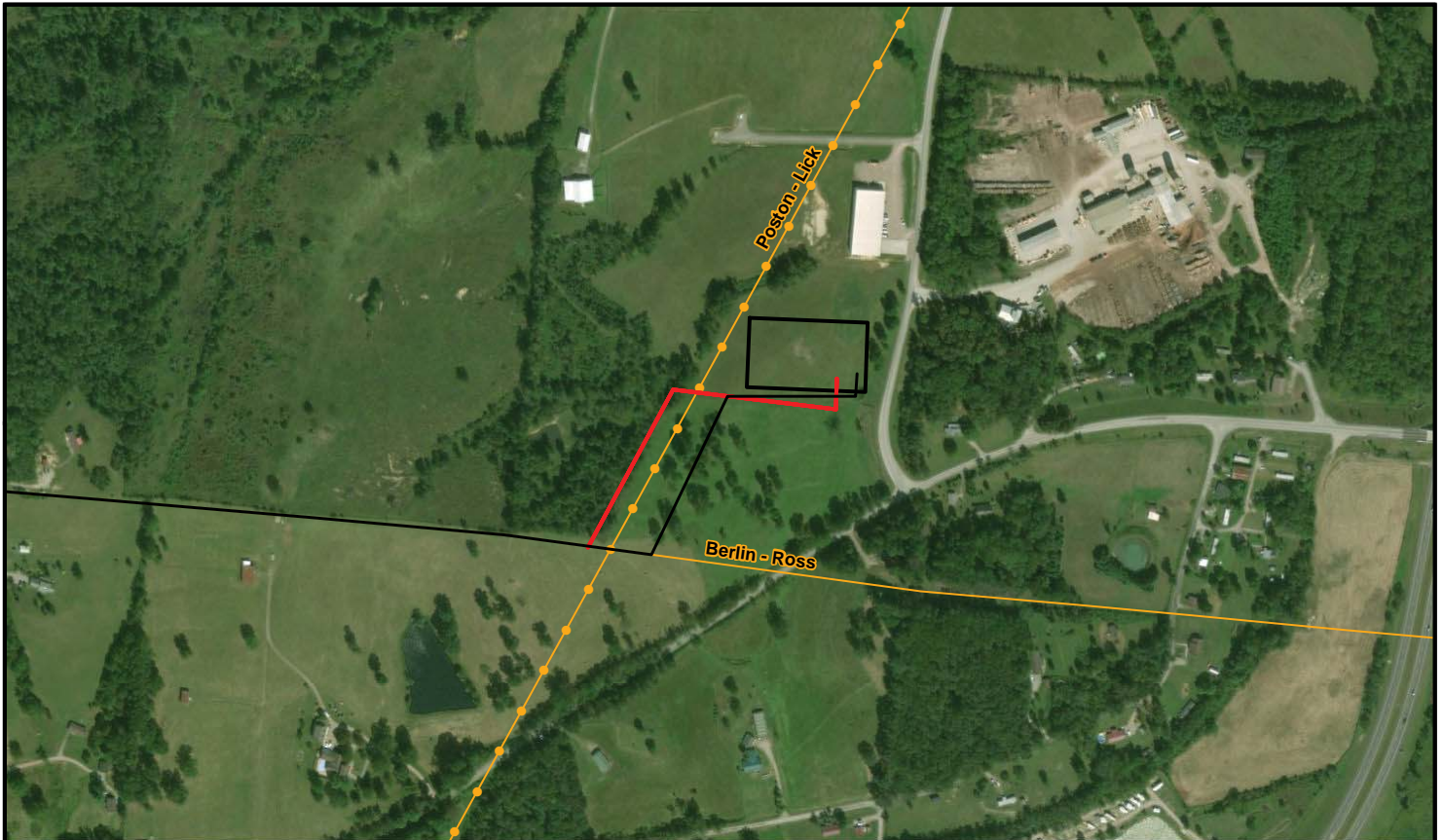
Appendix A Project Maps

Figures 1 and 2



AEP OHIO
Adjustment to Heppner-Rhodes
138 kV Transmission Line
Rebuild Project

Scale in Feet



Legend

- Heppner-Rhodes Adjustment
- Heppner-Rhodes OPSB Approved Route
- Existing Transmission Line
- 69 kV
- 138 kV
- Proposed Rhodes Station

Data Source: ESRI ArcMap
Aerial Imagery - DigitalGlobe, 2015

Coordinate System and Datum:
NAD_1983_StatePlane_
Ohio_South_FIPS_3402_Feet



Date: 5/30/2018

Locator Map



Figure 2
Aerial Project Map



Adjustment to Heppner-Rhodes
138 kV Transmission Line
Rebuild Project

BOUNDLESS ENERGY

0 500 1,000

Scale in Feet

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER-RHODES 138 KV TRANSMISSION
LINE REBUILD PROJECT**

Appendix B PJM Submittal and 2018 Long Term Forecast Report
May 2018

Appendix B PJM Submittal and 2018 Long Term Forecast Report

PJM Submittal



AEP Transmission Owner Criteria Violation and Supplemental Project

Problem Statement:

The City of Jackson has requested a new 69kV delivery point (Ironman Switch) capable of carrying their entire load, which will be ~37 MW due to a 4 MW load increase by the City. This new delivery point will be redundant with the existing 138kV delivery point out of Lick Station.

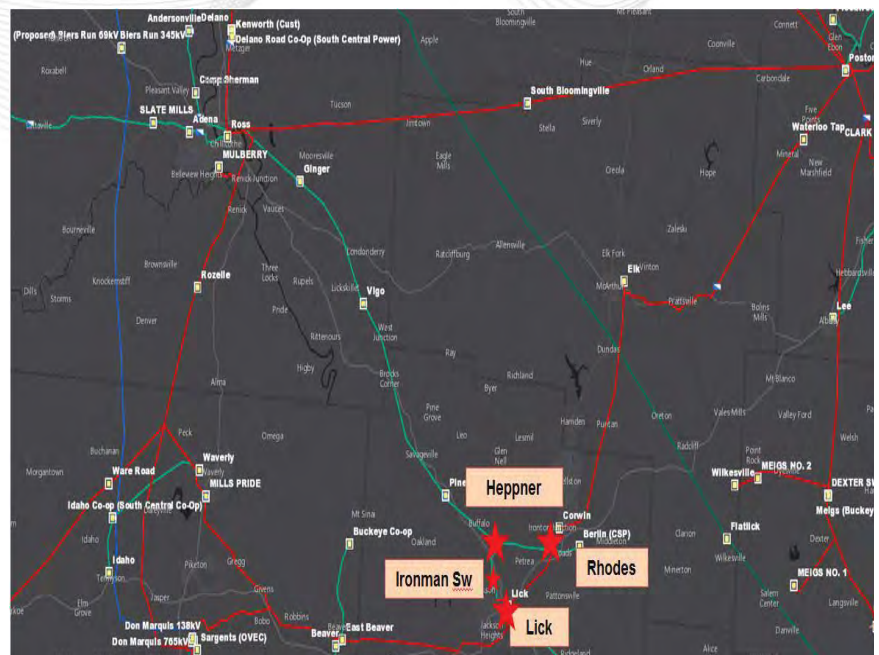
After the customer load is connected and is at the full capacity, there is an N-1 violation that drops the voltage at the customer bus to ~65% and thermally overloads the Lick-Ross 69kV Circuit to 130%. To solve this violation, a new 138/69kV station will be established (Rhodes Station), injecting a 3rd source onto the Lick-Ross 69kV circuit. Following the solution, no N-1 or N-1-1 violations appear.

The new City of Jackson delivery point is directly adjacent to the existing Berlin-Lick-Ross 69kV circuit. Of the 37+ miles of conductor on the circuit, 88% (32.96 miles) is original from the 1926 line construction – mostly 4/0 ACSR Penguin (50 MVA rating). Of the 275 structures, 98% (269) are wood and 43% (119) are older than 1960. There are 241 open conditions on the line, including issues with conductor, structures, and ROW encroachments. The line has been responsible for 1.4M CMI from 2013-2015, including over 12.5k customer interruptions. It is recommended that this circuit be rebuilt to 138kV standards in anticipation of a future 138kV conversion to become an additional 138kV path to support Ross Station as there is only one 138 kV source that currently feeds Ross station from the South.

Issues at every switch structure on this circuit (Coalton Sw, Pine Ridge Sw, Vigo, and Ginger) complicates any planned outages as momentary outages are required at all three stations in order to isolate a circuit section. AEP's MPOI calculation justifies the installation of breakers at Heppner station, which will replace Coalton switch. –City of Jackson, Jackson County, OH

Continued on next slide...

AEP Transmission Zone





AEP Transmission Owner Criteria Violation and Supplemental Project

Continued from previous slide...

Potential Alternative Solutions Considered:

- Extend 69kV from East Beaver-Buckeye Co-Op to Pine Ridge, construct ring bus at Pine Ridge. This alternative was ruled out due to the need to rebuild the radial from East Beaver-Buckeye Co-Op (4.53 miles) and the need for 7 miles of new right-of-way to extend the line to Pine Ridge. Estimated Cost: \$34M
- New 138/69kV Transformer at Corwin, 69kV line extension through AEP's retired Berlin Station. Expansion difficulties at Corwin would likely lead to a complete rebuild of the station, plus an additional mile of 69kV greenfield line in addition to constructing Rhodes station. Estimated Cost: \$23M

Preliminary Solution:

Install a new Ironman Switch to serve a new delivery point requested by the City of Jackson for a load increase request. Establish a new 138/69 kV station (Rhodes) to serve as a third source to the area to help relieve overloads caused by the customer load increase. Replace Coalton Switch with a new three breaker ring bus (Heppner). (Baseline)

Estimated Cost: \$13M

Rebuild approximately 6 miles of line from Rhodes to Heppner and from Heppner to Lick with 1033 ACSR (148 MVA rating). Build for future 138 kV conversion. (Supplemental)

Estimated Cost: \$7M

Required IS date: 3/1/2018

Status: Engineering

AEP Transmission Zone



2018 Long Term Forecast Report

AEP OHIO TRANSMISSION COMPANY, INC.

**LONG-TERM FORECAST REPORT
TO THE
PUBLIC UTILITIES COMMISSION OF OHIO**

Case No. 18-1501-EL-FOR

**2018
ELECTRIC**

**LONG-TERM FORECAST REPORT
TO THE
PUBLIC UTILITIES COMMISSION OF OHIO**

Submitted by

**AEP Ohio Transmission Company, Inc.
700 Morrison Road
Gahanna, Ohio 43230
Telephone: (614) 716-1000**

April 16, 2018

CERTIFICATE OF SERVICE

I hereby certify that:

1. Pursuant to Section 4901:5-1-03(F), Ohio Administrative Code, copies of AEP Ohio Transmission Company, Inc.'s 2018 Long-Term Forecast Report have been delivered or mailed to the Office of Consumers' Counsel on the day of the filing;
2. Pursuant to Section 4901:5-1-03(G), Ohio Administrative Code, a letter of notification stating where copies of AEP Ohio Transmission Company, Inc.'s 2018 Long-Term Forecast Report to the Public Utilities Commission of Ohio may be obtained, will be sent by first class mail to the appropriate county libraries within three days of filing;
3. Pursuant to Section 4901:5-1-03(H), Ohio Administrative Code, AEP Ohio Transmission Company, Inc. will keep at least one copy of their 2018 Long-Term Forecast Report at their principal business office for public inspection during business hours; and
4. Pursuant to Section 4901:5-1-03(I), Ohio Administrative Code, AEP Ohio Transmission Company, Inc. will provide a copy of their 2018 Long-Term Forecast Report to any person upon request at a cost to cover the expenses incurred.



Steve T. Nourse
American Electric Power Service Corporation
1 Riverside Plaza
Columbus, Ohio 43215
(614) 716-1608
Attorney for AEP Ohio Transmission Company, Inc.

April 16, 2018
Dated this day in Columbus, Ohio

OH Transco 2018

**STATEMENT PURSUANT TO SECTION 4901:5-1-03(D),
OHIO ADMINISTRATIVE CODE**

**AEP Ohio Transmission Company, Inc.'s 2018 Long-Term Forecast Report is true
and correct to the best of my knowledge and belief.**



Robert W. Bradish
Vice President, Transmission Planning and Engineering
AEP Ohio Transmission Company, Inc.

**April 16, 2018
Dated this day in Columbus, Ohio**

AEP OH Transco 2018

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AEP OHIO TRANSMISSION COMPANY, Inc.

LTFR TRANSMISSION FORMS

Case No. 18-1501-EL-FOR

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Berlin - Lick - Ross
2.	Points of Origin and Termination:	Heppner/Rhodes; Intermediate Station - N/A
3.	Right-Of-Way:	~4.2 miles / 100 ft / 1 ckt
4.	Voltage:	138kV / 69kV
5.	Application For Certificate:	2018
6.	Construction:	2018
7.	Capital Investment:	\$20M
8.	Planned Substations:	Name - Rhodes; Voltage - 138/12kV; Acreage - N/A; Location - Jackson
9.	Supporting Structures:	steel H - frame
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Tie 138kV Lick-Corwin line to Lick Ross line for reliability
12.	Consequences of Line Construction Deferral or Termination:	Reduced reliability for Jackson County customers
13.	Miscellaneous	

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER-RHODES 138 KV TRANSMISSION
LINE REBUILD PROJECT**

Appendix C Ohio History Connection Concurrence Letters
May 2018

Appendix C Ohio History Connection Concurrence Letters



In reply refer to
2017-JAC-40081

October 23, 2017

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

RE: Heppner-Rhodes 69kV/138kV Rebuild Project in Lick and Coal Townships, Jackson County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on September 25, 2017 regarding the proposed Heppner-Rhodes 69kV/138kV Rebuild Project, Lick and Coal Townships, Jackson 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 4906-4). 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 (16 U.S.C.470 [36 CFR 800]).

The following comments pertain to the *Phase I Archaeological Investigations for the Proposed 6.4 km (4.0 mi) Heppner-Rhodes 69kV/138kV Rebuild Project in Lick and Coal Townships, Jackson County, Ohio* by Weller & Associates, Inc. (2017).

A literature review, visual inspection, shovel probe excavation, and shovel test unit excavation was completed as part of the investigations. No previously inventoried Ohio Archaeological Inventory (OAI) site is located within the project area. Three (3) Ohio Archaeological Inventory (OAI) sites were identified as part of this survey. OAI#33JA0408 and 33JA0410 are prehistoric period lithic scatters that were identified during shovel test unit excavation. OAI#33JA0409 is a multicomponent scatter identified during subsurface testing methods. The historic-period artifacts identified included a Point Pleasant pipe stem fragment (c. 1830-1890). None of the sites are recommended as eligible for listing in the National Register of Historic Places (NRHP). Based on the information provided, we agree the archaeological sites are not eligible for listing in the NRHP and no further archaeological work is necessary.

The following comments pertain to the *History/Architecture Investigations for the Proposed 6.4 km (4.0 mi) Heppner-Rhodes 69kV/138kV Rebuild Project in Lick and Coal Townships, Jackson County, Ohio* by Weller & Associates, Inc. (2017).

The investigations consisted of a systematic survey of all properties fifty years of age or older that are situated within 1,000' on either side of the proposed project site. In total, three individual properties of fifty years or age or older were identified within the survey APE that may have a direct line-of-sight to the project.

It is Weller's recommendation that none of these properties are eligible for inclusion in the National Register of Historic Places due to alterations, additions, and a loss of historic integrity. Our office agrees with Weller's recommendations regarding eligibility.

RPR Serial No: 1070648, 1070649

Mr. Ryan J. Weller
Page 2
October 23, 2017

The results of the architectural investigation identified no historic properties located within the APE that exhibit potential significance for inclusion in the National Register of Historic Places. Therefore, we agree that the project as proposed will have no effect on historic properties.

Based on the information provided, we agree the project will not affect historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during implementation of this project. In such a situation, this office should be contacted.

If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorricks@ohiohistory.org. Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read 'Krista Horrocks', with a stylized, flowing script.

Krista Horrocks, Project Reviews Manager
Resource Protection and Review

cc: Ron Howard, AEP (rmhoward@aep.com)

RPR Serial No: 1070648, 1070649

OHIO HISTORY CONNECTION

800 E. 17th Ave., Columbus, OH 43211-2474 • 614.297.2300 • ohiohistory.org



In reply refer to
2017-JAC-39798

May 24, 2018

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

RE: Heppner-Lick 69kV/138kV Electric Line Project Access Road Routes and Expanded/Altered Pull Areas – Additional Addendum, Coal, Milton, and Lick Townships, Jackson County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on May 18, 2018 regarding the proposed Heppner-Lick 69kV/138kV Electric Line Project Access Road Routes and Expanded/Altered Pull Areas – Additional Addendum, Coal, Milton, and Lick Townships, Jackson 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 4906-4). 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 *Additional Addendum: Phase I Cultural Resource Investigations for Access Road Routes and Expanded/Altered Pull Areas for the Heppner-Lick 69kV/138kV Electric Line Project in Coal, Milton, and Lick Townships, Jackson County, Ohio* by Weller & Associates, Inc. (2018).

A literature review, visual inspection, and shovel test unit excavation was completed as part of the investigations. No previously identified archaeological sites are located within the project area. No new archaeological sites were identified during this survey. The recommendations made in our previous coordination letters, dated September 8, 2017 and December 19, 2017, remain. Based on the information provided, we still agree no additional archaeological survey is needed. No above-ground resources over the age of fifty years old were identified in the additional addendum. Therefore, we continue to agree that the project as proposed will have no indirect adverse effect on historic properties.

Based on the information provided, we agree with our original determination that the project will have no adverse effect on historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during the implementation of this project. In such a situation, this office should be contacted.

If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorrocks@ohiohistory.org. Thank you for your cooperation.

Sincerely,

A handwritten signature in blue ink, appearing to read "Krista Horrocks", is written over a horizontal line.

Krista Horrocks, Project Reviews Manager
Resource Protection and Review

cc: Ron Howard, AEP (rmhoward@aep.com)

RPR Serial No: 1074073

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER-RHODES 138 KV TRANSMISSION
LINE REBUILD PROJECT**

Appendix D Ecological Survey Report
May 2018

Appendix D Ecological Survey Report

Ecological Survey Report

AEP Ohio Transmission Company
Heppner – Rhodes 138kV Line Rebuild Project
Jackson County, Ohio

GAI Project Number: C170352.06, Task 001

October 2017



Prepared by: GAI Consultants, Inc.
Canton Office
3720 Dressler Road Northwest
Canton, Ohio 15120-2700

Prepared for: American Electric Power Service Corporation
1 Riverside Place
22nd Floor
Columbus, Ohio 43215-2373

Ecological Survey Report

AEP Ohio Transmission Company
Heppner – Rhodes 138kV Line Rebuild Project
Jackson County, Ohio

GAI Project Number: C170352.06, Task 001

October 2017

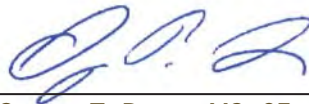
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George T. Reese, MS, CE
Environmental Director

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1.0 Introduction

GAI Consultants, Inc. (GAI), on behalf of American Electric Power Ohio Transmission Company (AEP), completed an ecological survey for the Heppner – Rhodes 138kV Line Rebuild Project (Project) located in Jackson County, Ohio (OH). The Project involves rebuilding approximately 4.6-miles of the existing 69 kilovolt (kV) transmission line to a 138kV transmission line.

Ecological surveys were completed on July 17-19, 2017. The study area consisted of a 200-foot-wide corridor centered along the existing transmission line, as shown on Figure 1.

The Project study area is located within the Horse Creek-Little Salt Creek (United States Geological Survey [USGS] Hydrologic Unit Code [HUC] #050600020803), Dickason Run (HUC #050901010402), and Headwaters Little Raccoon Creek (HUC #050901010401) watersheds.

This report details the results of the ecological surveys regarding the existence of aquatic resources within the Project area (Figure 2). The United States Army Corps of Engineers (USACE) Wetland Determination Data Forms are provided in Appendix B. Ohio Environmental Protection Agency (OEPA) Primary Headwater Habitat Evaluation (HHEI) Data Forms are provided in Appendix C and Ohio Rapid Assessment Method for Wetlands (ORAM) Data Forms are provided in Appendix D.

2.0 Methods

2.1 Wetlands

The 1987 USACE *Corps of Engineers Wetlands Delineation Manual* (Wetlands Delineation Manual) (USACE, 1987) and the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, Version 2.0* (Regional Supplement) (USACE, 2012) describe the methods used to identify and delineate wetlands that fall under the jurisdiction of the USACE. This approach recognizes the three parameters of wetland hydrology, hydrophytic vegetation, and hydric soils to identify and delineate wetland boundaries. In accordance with the Wetlands Delineation Manual and Regional Supplement, GAI completed preliminary data gathering and onsite inspections.

2.1.1 Preliminary Data Gathering

The preliminary data gathering was used to compile and review information that may be helpful in identifying wetlands and/or areas that warrant further inspection during the investigation. The preliminary data gathering included a review of the following:

- ▶ USGS 7.5-minute topographic mapping for Jackson (USGS, 1978) and Wellston (USGS, 1977), OH (Figure 1);
- ▶ United States Fish and Wildlife Service (USFWS), National Wetlands Inventory (NWI) mapping (USFWS, 2015) (Figure 2);
- ▶ Federal Emergency Management Agency (FEMA), National Flood Hazard Layer (FEMA, 2015) (Figure 2); and
- ▶ United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS, 2015) soil mapping (Figure 2).

Topographic mapping was used to identify mapped streams and the overall shape of the landscape in the Project area to determine potential locations for wetlands, such as floodplains and depressions. NWI mapping was used to determine locations where probable wetlands are located based on infrared photography. Soil mapping was reviewed to determine the location and extent of mapped hydric soils that have a high probability of containing wetlands.

2.1.2 Onsite Inspection

The methodology described in the Regional Supplement identifies areas meeting the definition of a wetland by evaluating three parameters: hydrology, vegetation, and soil. During the on-site inspection, GAI staff traversed the Project study area on foot to determine if any indicators of wetlands were present. When indicators of wetlands were observed, an observation point was established, and a Wetland Determination Data Form (Data Form) was completed to determine if all three wetland indicators were present.

The presence of wetland hydrology was determined by examining the observation point for primary and secondary indicators of wetland hydrology. The presence of any primary indicator signified the presence of wetland hydrology, or the presence of two or more secondary indicators signified the presence of wetland hydrology.

Vegetation was characterized by four different strata. This included trees (woody plants, excluding vines, three inches or more in diameter at breast height [DBH]), saplings/shrubs (woody plants, excluding vines, less than three inches DBH and greater than or equal to 3.28 feet tall), herbs (non-woody plants, regardless of size, and all other plants less than 3.28 feet tall), and woody vines (greater than 3.28 feet tall). In general, trees and woody vines were sampled within a thirty-foot (30') radius, saplings and shrubs were sampled within a fifteen-foot (15') radius, and herbs were sampled within a five-foot (5') radius.

When evaluating an area for the presence of hydrophytes, classification of the indicator status of vegetation was based on *The National Wetland Plant List: 2016 Update of Wetland Ratings* (Lichvar et al., 2016). The list of possible indicator statuses for plants is as follows:

- ▶ Obligate Wetland (OBL) - Obligate Wetland plants occur in standing water or in saturated soils;
- ▶ Facultative Wetland (FACW) - Facultative Wetland plants nearly always occur in areas of prolonged flooding or require standing water or saturated soils but may on rare occasions, occur in non-wetlands;
- ▶ Facultative (FAC) - Facultative plants occur in a variety of habitats, including wetland and mesic to xeric non-wetland habitats but often occur in standing water or saturated soils;
- ▶ Facultative Upland (FACU) - Facultative Upland plants typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils; and
- ▶ Obligate Upland (UPL) - Obligate Upland plants almost never occur in water or saturated soils.

Presence of hydrophytic vegetation was determined by using a Rapid Test, Dominance Test or Prevalence Index (USACE, 2010). The Rapid Test finds a vegetation community to be hydrophytic if all dominant species are OBL or FACW. Hydrophytic vegetation was considered present based on the Dominance Test if more than 50 percent of dominant species are OBL, FACW, or FAC. The Prevalence Index weighs the total percent of vegetation cover based on the indicator status of each plant. Hydrophytic vegetation was considered present when the Prevalence Index is less than or equal to 3.0.

To determine the presence of hydric soils, soil data was collected by digging a minimum 16-inch soil pit. The soil profile was studied and described, while possible hydric indicators were examined. Soil indicators described in the Wetlands Delineation Manual and Regional Supplement were used to determine the presence of hydric soils. The presence of any of these indicators signified a hydric soil.

If all three parameters including wetland hydrology, a dominance of hydrophytic vegetation, and hydric soils were identified at a single observation point, the area was determined to be a wetland. Once a wetland was identified, the boundary was delineated.

Wetland boundaries were determined by looking for locations in which one of the three wetland indicators would transition into an upland characteristic. When the transition was identified, a Data Form was completed in the Upland Area. Wetland boundaries were then marked in the field using pink flagging labeled "WETLAND DELINEATION." The locations of the flags were recorded using a Global Positioning System (GPS) unit. Each wetland was codified with a unique identifier indicating the feature type and number (e.g., W001).

Wetlands were then classified using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979) as modified for NWI Mapping Convention. This system classifies wetlands based on topographic position and vegetation type. Palustrine system wetlands found within the study area are classified as Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), Palustrine Forested (PFO), or Palustrine Unconsolidated Bottom (PUB) based on aerial coverage of the vegetative community across the extent of the wetland boundary (Cowardin et al., 1979).

2.2 Waterbodies

As with wetlands, Section 404 of the Clean Water Act (CWA) and state regulations protect waterbodies in OH. Generally, waterbodies are defined as environmental features that have defined beds and banks, ordinary high water mark (OHWM), and contain flowing or standing water for at least a portion of the year.

2.2.1 Preliminary Data Gathering

During the preliminary data gathering, the USGS 7.5-minute topographic mapping was examined for the presence of mapped waterbodies including perennial and intermittent streams. In addition, the topographic mapping was used to identify areas likely to contain unmapped waterbodies including ephemeral streams (USGS, 1977 and 1978) (Figure 1).

The OEPA Stream Eligibility Web Map was used to determine eligibility coverage under the 401 Water Quality Certification (WQC) for the 2017 Nationwide Permits (NWPs). Furthermore, the map was used to identify any ineligible areas that may require a CWA Section 401 individual permit from the OEPA should stream impacts occur within the Project area (OEPA, 2017) (Figure 3).

2.2.2 Onsite Inspection

During the onsite inspection, GAI staff traversed the study area, concurrently with the wetland inspection, and waterbodies were identified. Waterbodies were identified based on the morphological and hydrologic characteristics of the channel and the presence of aquatic macroinvertebrates.

When a waterbody was identified, field measurements were collected. The measurements included top of bank width, top of bank depth, pool depth, water depth, OHWM width, and OHWM depth. A detailed description of substrate composition was also recorded. Waterbodies were then delineated using white flagging marked with the GAI stream code (e.g., S001). The tops-of-bank for streams wider than 10 feet were delineated and the centerline of smaller streams were delineated. The locations of the flags were recorded using a sub-meter capable hand-held GPS unit.

2.3 Rare, Threatened, and Endangered Species

GAI conducted a literature review of potential Rare, Threatened, and Endangered (RTE) species in the vicinity of the Project study area. Potential habitat for RTE species as a result of the literature review was noted during the ecological survey.

2.3.1 Preliminary Data Gathering

A request for review of the Ohio Natural Heritage Database (ONHD) was submitted to the Ohio Department of Natural Resources (ODNR) to determine if any state-listed threatened or endangered species occur within a one-mile radius of the Project area. A request was also submitted to the USFWS Ohio Ecological Services Field Office to determine if any federally-listed threatened or endangered species occur within the vicinity of the Project area.

2.3.2 Onsite Inspection

During the onsite inspection, GAI staff traversed the study area in conjunction with the wetland and waterbody inspections to determine if suitable habitat for state- and/or federally-listed RTE species are present within the study area.

3.0 Results

3.1 Wetlands

3.1.1 Preliminary Data Gathering

Desktop review of available USFWS NWI digital data for the Project revealed two NWI mapped wetlands located within the Project study area. One NWI wetland is classified as Palustrine Scrub-Shrub, Broad-Leaved Deciduous/Emergent, Persistent, Seasonally Flooded (PSS1/EM1C) and corresponds with W004 and W005. The other NWI wetland is classified as Palustrine Unconsolidated Bottom, Intermittently Exposed, Excavated (PUBGx) and corresponds with W001 (USFWS, 2015).

According to the USDA-NRCS soil mapping, a total of 15 soil map units are located within the Project study area (Figure 2). One of the soil map units is classified as hydric (Piopolis silt loam [Pio1AF]) and one is known to contain hydric inclusions (Orrville silt loam [Or]).

3.1.2 Onsite Inspection

Ten wetlands were identified and delineated within the Project study area, including eight PEM wetlands and two PUB wetlands. In order to document site conditions, USACE Data Forms were completed for each wetland and upland reference. Information on the delineated wetlands can be found in Table 1 and photographs of the wetlands are included in Appendix A.

3.1.3 Regulatory Discussion

The USACE guidance divides waterbodies into three groups: Traditionally Navigable Waters (TNWs), non-navigable Relatively Permanent Waters (RPWs), and non-navigable Non-RPWs. TNWs are waterbodies which have been, are, or may be susceptible to use in interstate commerce, including recreational use of the waterbody. RPWs are waterbodies that flow year round, or at a minimum seasonally, by exhibiting continuous flow for at least three consecutive months, but are not TNWs (USACE, 2007). Non-RPWs are waterbodies that do not flow continuously for at least three consecutive months, are not TNWs or RPWs, but typically exhibit characteristic beds, banks, and OHWM (USACE, 2007).

The status of wetlands is determined partly based on the classification of the waterbody that the wetland is associated with, and the degree of that association. Wetlands that abut or are

adjacent to TNWs are jurisdictional. Wetlands that abut RPWs are jurisdictional. Wetlands that are adjacent to RPWs and wetlands that abut or are adjacent to Non-RPWs must be subjected to the Significant Nexus Test (SNT) to determine their jurisdictional status. Generally, the USACE considers wetlands that are isolated, meaning that they are not associated with any other surface water feature, as non-jurisdictional; and wetlands that abut or are adjacent to Non-RPWs as needing further examination by the USACE to determine and verify whether they exhibit a significant nexus to waters of the United States. If these wetlands exhibit a significant nexus, they are jurisdictional; if not, they are not subject to USACE jurisdiction.

Wetlands that do not exhibit an association with any surface water are categorized as “isolated” under present USACE guidance and policy. These wetlands are regulated by the OEPA Division of Surface Water, and may require an Isolated Wetland Permit.

As regulated by Ohio Administrative Code (OAC) rules 3745-1-50 through 3745-1-54, wetlands were also evaluated using the ORAM to determine the appropriate wetland category. Any wetland score that fell within a gray zone between categories was scored one of two ways. Either the wetland was assigned to the higher of the two categories or it was assessed using a non-rapid method to determine its quality (Mack, 2001). The category assigned to a particular wetland determines the requirement, if any, for additional levels of protection administered by the OEPA.

All wetlands within the study area were identified as jurisdictional. Jurisdictional status is the opinion of GAI and must be confirmed by USACE and state agencies through the Jurisdictional Determination (JD) process.

3.2 Waterbodies

3.2.1 Preliminary Data Gathering

Desktop review of the available USGS topographic mapping revealed three previously mapped stream segments located within the Project study area (Figure 1). Desktop review of OEPA's Stream Eligibility Web Map revealed the Project is located within eligible and possibly eligible areas for automatic 401 WQC coverage (Figure 3).

3.2.2 Onsite Inspection

Sixteen stream segments were identified and delineated within the Project study area. Six stream segments were classified as having a perennial flow regime, four were classified as intermittent, and six were classified as ephemeral. Information on the delineated waterbodies and their classifications can be found in Table 2, and photographs of the identified streams are included in Appendix A.

3.2.3 Regulatory Discussion

As with wetlands, present USACE guidance and policy determines the jurisdictional status of waterbodies identified during the Project. TNWs and RPWs are jurisdictional. Non-RPWs must be subjected to the SNT by USACE to determine their jurisdictional status. If Non-RPWs exhibit a Significant Nexus, as defined in USACE guidance documents, they are jurisdictional. If not, they do not fall under the jurisdiction of the USACE.

Streams are generally defined as environmental features that have defined beds and banks, an OHWM as defined in Regulatory Guidance Letter No. 05-05 (USACE, 2005), and contain flowing or standing waters for at least a portion of the year. Streams were classified as perennial, intermittent, or ephemeral based upon presence of flow, estimated duration of flow, stream bed characteristics, and presence of aquatic biota. The USACE *Jurisdictional*

Determination Form Instructional Guidebook (USACE, 2007) was used to determine stream classification and flow status.

As regulated by OAC Chapter 3745-1-13 and Section 401 WQC, streams were also assessed according to OEPA guidance using either the HHEI for watersheds less than one square mile in size, or the Qualitative Habitat Evaluation Index (QHEI) for watersheds between one and 20 square miles in size.

One stream segment (S002) located within the Project study area was identified as Horse Creek, which is designated as a Warmwater Habitat (WWH) stream by OAC Chapter 3745-1-09. Two stream segments (S008 and S013) were identified as Sugar Run, which is designated as a WWH stream by OAC Chapter 3745-1-09. All other stream segments located within the Project study area were identified as Unnamed Tributaries (UNTs) to Horse Creek, Sugar Run, Dickason Run, and Meadow Run.

Fifteen stream segments (S001 thru S014 and S016) are located within a possibly eligible area for coverage under the 401 WQC for NWP. One stream segment (S015) is located within an eligible area for coverage.

3.3 Rare, Threatened, and Endangered Species

3.3.1 Preliminary Data Gathering

Desktop review of ODNR, Division of Wildlife's Ohio's Listed Species revealed 321 Endangered, Threatened, Species of Concern, and Species of Interest located in OH (ODNR, 2016). Seventeen of the state-listed species are considered federally Endangered, and four are federally Threatened.

A review of the USFWS *County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species for Ohio* as well as the USFWS Information for Planning and Consultation (IPaC) website revealed three federally endangered or threatened species that may occur within the Project study area (USFWS, 2017). The list of species includes the following:

- ▶ Indiana bat (*Myotis sodalis*) - Endangered;
- ▶ Northern long-eared bat (*Myotis septentrionalis*) - Threatened; and
- ▶ Running buffalo clover (*Trifolium stoloniferum*) - Endangered.

In addition to the species listed above, there are nine species of migratory birds that may occur within the Project study area.

3.3.2 Onsite Inspection

Potential habitat for RTE species was evaluated within the Project study area. In general, the habitat encountered within the study area consisted of cleared transmission line right-of-way, PEM and PUB wetlands, successional mixed deciduous forest, agricultural fields (fallow, pasture), and residential properties. Six perennial, four intermittent, and six ephemeral streams were also identified within the Project study area. Representative photographs of the identified habitat types are included in Appendix A.

3.3.3 Regulatory Discussion

State-listed RTE species fall under the jurisdiction of the ODNR, Division of Wildlife, while federally-listed species are covered under Section 7 of the Endangered Species Act. The Bald and Golden Eagle Protection Act and Migratory Bird Act aim to extend protection to certain bird species that fall under the jurisdiction of the USFWS. Based on the desktop review and on-site

inspection, informal consultation with the ODNR and USFWS has been initiated to determine if any activities associated with the proposed Project may affect state- and/or federally-listed RTE species. The ODNR and USFWS consultation letters were submitted on May 12, 2017, and are provided in Appendix E. A response from the USFWS was received on June 2, 2017, and is also provided in Appendix E. The ODNR response will be appended when received.

4.0 Conclusions

Ecological surveys were conducted within the Project study area on July 17-19, 2017. Eight PEM wetlands and two PUB wetlands were identified within the Project study area. Sixteen stream segments (six perennial, four intermittent, and six ephemeral) were also identified within the Project study area. Summaries of the delineated aquatic features are provided in Tables 1 and 2, and a map of their locations is depicted on Figure 2. Photographs of the wetland and stream features are included in Appendix A. Wetland Determination Data Forms documenting the investigation are provided in Appendix B, with HHEI and ORAM Data Forms provided in Appendix C and D, respectively.

The jurisdictional status of these features are considered preliminary and should be confirmed with the USACE and state agencies through the JD process.

5.0 References

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TABLES

Table 1
Wetlands Identified Within the Project Study Area

Wetland I.D. ¹	Latitude ²	Longitude ²	Proximal Waterbody	USACE Classification ³	Cowardin Classification ⁴	Size ⁵ (acres)	ORAM v. 5.0 Score ⁶	ORAM Category ⁷	Figure 2 (sheet)
W001-PEM-CATMOD2	39.084131	-82.623131	UNT to Horse Creek	Jurisdictional; Adjacent	PEM	0.077	35.5	Modified 2	2
W002-PEM-CATMOD2	39.084342	-82.622316	UNT to Horse Creek	Jurisdictional; Abutting	PEM	1.152	40.5	Modified 2	2
W003-PEM-CAT2	39.084013	-82.621145	UNT to Horse Creek	Jurisdictional; Abutting	PEM	0.027	30	2	2
W004-PUB-CAT2	39.084462	-82.620935	Horse Creek	Jurisdictional; Adjacent	PUB	0.045	50	2	2
W005-PEM-CAT2	39.084304	-82.621049	Horse Creek	Jurisdictional; Abutting	PEM	0.030	34.5	2	2
W006-PEM-CATMOD2	39.084129	-82.620396	Horse Creek	Jurisdictional; Abutting	PEM	0.141	40.5	Modified 2	2
W007-PUB-CAT2	39.080756	-82.584114	UNT to Sugar Run	Jurisdictional; Adjacent	PUB	0.071	34	2	5
W008-PEM-CAT1	39.081021	-82.584057	UNT to Sugar Run	Jurisdictional; Abutting	PEM	0.102	21	1	5
W009-PEM-CATMOD2	39.080018	-82.564669	UNT to Dickason Run	Jurisdictional; Adjacent	PEM	0.011	37.5	Modified 2	7
W010-PEM-CATMOD2	39.080620	-82.550611	UNT to Meadow Run	Jurisdictional; Adjacent	PEM	0.202	41	Modified 2	9

Notes:

- ¹ GAI map designation.
- ² North American Datum, 1983.
- ³ Jurisdictional status is the opinion of GAI and must be confirmed by USACE and state agencies through the JD process.
- ⁴ PEM - Palustrine Emergent; PUB - Palustrine Unconsolidated Bottom.

⁵ Total acreage of wetland located within the Project study area.

⁶ Interim scoring breakpoints for wetland regulatory categories for ORAM v 5.0 Score: Category 1 score 0 - 29.9; Category 1 or 2 gray zone ORAM score 30 - 34.9; Category modified 2 ORAM score 35 - 44.9; Category 2 ORAM score 45 - 59.9; Category 2 or 3 ORAM score 60 - 64.9; Category 3 ORAM score 65 - 100. OEPA Ecology Unit Division of Surface Water. *ORAM v. 5.0 Qualitative Score Calibration*. Dated August 15, 2000. http://www.epa.ohio.gov/portals/35/401/oram50sc_s.pdf.

⁷ OAC Rule 3745-1-54(C)(2) defines Category 1 wetlands as wetlands which "...support minimal wildlife habitat, and minimal hydrological and recreation functions," and as wetlands which have "...hydrologic isolation, low species diversity, a predominance of non-native species, no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions." Category 2 wetlands are defined as wetlands which "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Degraded but Restorable Category 2 Wetlands are according to OAC Rule 3745-1-54(C) states that wetlands that are assigned to Category 2 constitute the broad middle category that "...support moderate wildlife habitat, or hydrological or recreational functions," but also include "...wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." OAC Rule 3745-1-54(C)(2) defines Category 3 wetlands as wetlands which "...support superior habitat, or hydrological or recreational functions," and as wetlands which have "...high levels of diversity, a high proportion of native species, or high functional values."

Table 2
Waterbodies Identified Within the Project Study Area

Stream I.D. ¹	Waterbody Name	OEPA WQ Designation ²	OEPA Stream Eligibility ³	Stream Type	USACE Classification ⁴	HHEI Score ⁵	PHWH Class ⁵	QHEI Score ⁶	Bank Width ⁷ (feet)	OHWM Width (feet)	OHWM Depth (inches)	Stream Length ⁸ (feet)	Latitude ⁹	Longitude ⁹	Figure 2 (sheet)
S001	UNT to Horse Creek	-	Possibly Eligible	Perennial	RPW	35	Class II	-	2	1.5	6	674	39.084471	-82.622058	2
S002	Horse Creek	WWH	Possibly Eligible	Perennial	RPW	-	-	-	15	10	24	233	39.084222	-82.620882	2
S003	UNT to Horse Creek	-	Possibly Eligible	Ephemeral	NRPW	25	Class I	-	3	1.5	6	246	39.083316	-82.604563	3
S004	UNT to Sugar Run	-	Possibly Eligible	Intermittent	RPW	53	Class II	-	6	4.5	12	389	39.083311	-82.600450	4
S005	UNT to Sugar Run	-	Possibly Eligible	Intermittent	RPW	36	Class II	-	4	1	6	137	39.083355	-82.600390	4
S006	UNT to Sugar Run	-	Possibly Eligible	Ephemeral	NRPW	32	Class II	-	4	2	6	54	39.082946	-82.598937	4
S007	UNT to Sugar Run	-	Possibly Eligible	Perennial	RPW	62	Class II	-	5	4	12	295	39.081770	-82.591587	5
S008	Sugar Run	WWH	Possibly Eligible	Perennial	RPW	-	-	-	9	7	12	593	39.081693	-82.590576	5
S009	UNT to Sugar Run	-	Possibly Eligible	Ephemeral	NRPW	20	Class I	-	2	1	3	36	39.081609	-82.588623	5
S010	UNT to Sugar Run	-	Possibly Eligible	Perennial	RPW	52	Class II	-	5	3	12	258	39.081184	-82.586919	5
S011	UNT to Sugar Run	-	Possibly Eligible	Intermittent	RPW	34	Class II	-	2	1.5	6	252	39.081039	-82.584161	5
S012	UNT to Sugar Run	-	Possibly Eligible	Intermittent	RPW	39	Class II	-	2	1	4	188	39.080883	-82.581156	6
S013	Sugar Run	WWH	Possibly Eligible	Perennial	RPW	-	-	-	9	7	6	1,869	39.080808	-82.579107	6
S014	UNT to Sugar Run	-	Possibly Eligible	Ephemeral	NRPW	16	Class I	-	2	2	4	306	39.080390	-82.568980	7
S015	UNT to Dickason Run	-	Eligible	Ephemeral	NRPW	22	Class I	-	3	1	6	218	39.080041	-82.562660	7,8
S016	UNT to Meadow Run	-	Possibly Eligible	Ephemeral	NRPW	24	Class I	-	2	1	4	911	39.081751	-82.549501	9

Notes:

- ¹ GAI map designation.
- ² As defined by OAC Chapter 3745-1 Water Quality Standards, Water use designations and statewide criteria (OAC 3745-1-09). http://www.epa.ohio.gov/dsw/rules/3745_1.aspx.
- ³ As defined by the 401 WQC conditions for stream eligibility coverage under the 2017 NWP program. Streams located in Possibly Eligible areas are eligible for coverage if the pH is <6.5 or stream flow is ephemeral. Streams located in Possibly Eligible areas are also eligible for coverage if the HHEI score is <50, or if the HHEI score is between 50-69 and substrate composition is ≤10% coarse types (includes cumulative percentage of bedrock, boulders, boulder slabs, and cobble).
- ⁴ Jurisdictional status is the opinion of GAI and must be confirmed by USACE and state agencies through the JD process. RPW - Relatively Permanent Waters.
- ⁵ Scoring for OEPA Headwater Habitat Evaluation Index (HHEI) Primary Headwater Habitats (PHWH). Class I = 0 - 29.9 and include "normally dry channels with little or no aquatic life present"; Class II = 30 - 69.9 and are equivalent to "warm water habitat"; Class III = 70 - 100 and typically have perennial flow with cool-cold water adapted native fauna.
- ⁶ Narrative rating for headwater streams using the OEPA Qualitative Habitat Evaluation Index (QHEI). Excellent = ≥70; Good = 55 - 60; Fair = 43 - 54; Poor = 30 - 42; Very Poor = <30.
- ⁷ Width in feet from tops of stream bank.
- ⁸ Total stream length (in feet) located within the Project study area.
- ⁹ North American Datum, 1983.

Table 3
ODNR and USFWS RTE Species and Critical Habitat Review Results¹

Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Amphibians						
Midland mud salamander	<i>Pseudotriton montanus diastictus</i>	Springs, seeps and creeks under large, flat stones	T	No	No; Known habitat types are not present within the Project area	-
Bats						
Indiana bat	<i>Myotis sodalis</i>	Trees >3" dbh	E, FE	Yes	No; Avoided with winter tree clearing	April 1 to September 30
Northern long-eared bat	<i>Myotis septentrionalis</i>	Roost in cavities or in crevices of both live trees and snags; Hibernate in caves and mines with constant temperatures, high humidity, and no air currents	FT	Yes	No; Avoided with winter tree clearing	April 1 to September 30
Fish						
Ohio lamprey	<i>Ichthyomyzon bdellium</i>	The Ohio River and the lower portion of its tributaries.	E	No	No; Known habitat types are not present within the Project area	-
Lake chubsucker	<i>Erimyzon sucetta</i>	Natural lakes and very sluggish streams or marshes with dense aquatic vegetation and clear waters	T	No	No; Known habitat types are not present within the Project area	-
Insects						
Regal fritillary	<i>Speyeria idalia</i>	Tall-grass and mixed-grass prairies	E	No	No; Known habitat types are not present within the Project area	-
Mammals						
Black bear	<i>Ursus americanus</i>	Large forested areas	E	Yes	No; Impacts are unlikely due to the migratory nature of this species	-
Allegheny woodrat	<i>Neotoma magister</i>	Rocky areas associated with mountain ridges such as cliffs, caves, and rocky fissures	E	No	No; Known habitat types are not present within the Project area	-

Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Mammals (Cont.)						
Bobcat	<i>Lynx rufus</i>	Varies; Generally solitary, territorial, and elusive	T	No	No; Impacts are not anticipated due to the Project location	-
Mussels						
Elephant-ear	<i>Elliptio crassidens crassidens</i>	Large rivers in mud, sand, or fine gravel	E	No	No; Known habitat types are not present within the Project area	-
Sharp-ridged pocketbook	<i>Lampsilis ovata</i>	Large rivers in coarse sand or gravel	E	No	No; Known habitat types are not present within the Project area	-
Little spectaclecase	<i>Villosa ilenosa</i>	Small to medium streams in sand or gravel	E	Yes	No; In-stream work is not proposed	-
Black sandshell	<i>Ligumia recta</i>	Medium to large rivers in riffles or raceways in gravel or firm sand	T	No	No; Known habitat types are not present within the Project area	-
Fawnsfoot	<i>Truncilla donaciformis</i>	Large rivers or the lower reaches of medium-sized streams in sand or gravel	T	No	No; Known habitat types are not present within the Project area	-
Pondhorn	<i>Unio merus tetralasmus</i>	Ponds, small creeks, and the headwaters of larger streams in mud or sand	T	No	No; Known habitat types are not present within the Project area	-
Plants						
Small white snakeroot	<i>Ageratina aromatic</i>	A variety of well-drained open areas on acidic soils	E	No	No; Known habitat types are not present within the Project area	-
Louisiana sedge	<i>Carex louisianica</i>	Swamp woods and shaded alluvial situations	E	No	No; Known habitat types are not present within the Project area	-
Willdenow's croton	<i>Croton willdenowii</i>	Barren stony or sandy clearings	E	No	No; Known habitat types are not present within the Project area	-
Sessile dodder	<i>Cuscuta compacta</i>	Low woods and thickets	E	No	No; Known habitat types are not present within the Project area	-

Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Plants (Cont.)						
Many-flowered umbrella sedge	<i>Cyperus lancastricensis</i>	A variety of open, dry situations, usually in sandy soils; Fields, barrens, clearings, and open woods	E	No	No; Known habitat types are not present within the Project area	-
Rough umbrella-sedge	<i>Cyperus retrofractus</i>	A variety of open, dry situations, usually in sandy soil; Fields, open woods, clearings, and barrens	E	No	No; Known habitat types are not present within the Project area	-
Velvet panic grass	<i>Dichanthelium scoparium</i>	Seepage meadows	E	No	No; Known habitat types are not present within the Project area	-
Engelmann's spike rush	<i>Eleocharis engelmannii</i>	Mudflats along margins of ponds and lakes	E	No	No; Known habitat types are not present within the Project area	-
Wolf's spike-rush	<i>Eleocharis wolfii</i>	Moist, open areas; Pond margins; Fields	E	No	No; Known habitat types are not present within the Project area	-
Hyssop thoroughwort	<i>Eupatorium hyssopifolium</i>	A variety of well-drained, open areas on acidic soils	E	No	No; Known habitat types are not present within the Project area	-
Sampson's snakeroot	<i>Gentiana villosa</i>	Mesic woodlands, pinelands, dry ravines, and roadsides	E	No	No; Known habitat types are not present within the Project area	-
Coppery St. John's-wort	<i>Hypericum denticulatum</i>	Usually wet, shaded to open situations; Low woods, bogs, and marshes	E	No	No; Known habitat types are not present within the Project area	-
Appalachian quillwort	<i>Isoetes engelmannii</i>	Open sun in shallow bodies of water; Pond margins and ditches	E	No	No; Known habitat types are not present within the Project area	-
Woodland rush	<i>Juncus subcaudatus</i>	Marshes, edges of streams, and peaty acidic and basic wetlands including fens; Wide variety of wet habitats	E	No	No; Known habitat types are not present within the Project area	-
One-coned club-moss	<i>Lycopodium lagopus</i>	Openings in woodlands and fields	E	No	No; Known habitat types are not present within the Project area	-
Bigleaf magnolia	<i>Magnolia macrophylla</i>	Mesic wooded ravines and near the tops of these ravines in oak woods	E	No	No; Known habitat types are not present within the Project area	-

Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Plants (Cont.)						
Curtiss' milkwort	<i>Polygala curtissii</i>	Open to semi-open situations in dry to moist, rocky to sandy soil; Wood borders, old fields, and thickets	E	No	No; Known habitat types are not present within the Project area	-
Spotted pondweed	<i>Potamogeton pulcher</i>	Peaty or muddy, acid waters or shores	E	No	No; Known habitat types are not present within the Project area	-
Flame azalea	<i>Rhododendron calendulaceum</i>	Open woods and cleared areas on well-drained, acidic soils	E	No	No; Known habitat types are not present within the Project area	-
Narrow-leaved bluecurls	<i>Trichostema dichotomum var. lineare</i>	Dry upland or sandy woods; Old fields	E	No	No; Known habitat types are not present within the Project area	-
Running buffalo clover	<i>Trifolium stoloniferum</i>	Mesic habitats with partial sunlight including woodlands and mowed lawns	E, FE	No	No; Known habitat types are not present within the Project area	-
Primrose-leaved violet	<i>Viola primulifolia</i>	Moist, open situations, usually in sandy soil; Meadows, edges of ponds, streams, marshes, and swamps	E	No	No; Known habitat types are not present within the Project area	-
Bluehearts	<i>Buchnera americana</i>	Full sun in well-drained, often rocky, openings and woodlands; prairies, pastures, roadbanks; at times on severely eroded slopes	T	No	No; Known habitat types are not present within the Project area	-
Bartley's Reed Grass	<i>Calamagrostis porteri ssp. insperata</i>	Dry upland areas in sun or partial shade; Jackson County population is under a powerline	T	Yes	Unknown	-
Bush's sedge	<i>Carex bushii</i>	Moist prairies, fields, and meadows in full sun	T	No	No; Known habitat types are not present within the Project area	-
Flattened sedge	<i>Carex companata</i>	Dry, open woods with neutral to acidic soils	T	No	No; Known habitat types are not present within the Project area	-
Short-fringed sedge	<i>Carex crinita var. brevicrinis</i>	Swamp woods, seeps in woods, and along streams	T	No	No; Known habitat types are not present within the Project area	-

Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Plants (Cont.)						
Reznicek's sedge	<i>Carex reznicekii</i>	Dry woods on sandy soils	T	No	No; Known habitat types are not present within the Project area	-
Lindheimer's panic grass	<i>Dichanthelium lindheimeri</i>	Open, moist, gravelly, often calcareous shores	T	No	No; Known habitat types are not present within the Project area	-
Slender spike-rush	<i>Eleocharis tenuis</i>	Moist soils in xeric limestone prairies; Wet meadows, shores of ponds, ditches, and disturbed, moist habitats	T	No	No; Known habitat types are not present within the Project area	-
White thoroughwort	<i>Eupatorium album</i>	A variety of well-drained, open areas on acidic soils	T	No	No; Known habitat types are not present within the Project area	-
Round-fruited hedge-hyssop	<i>Gratiola virginiana</i>	Wet places: stream margins, pools, ditches, swamps; generally in shade or semi shade	T	No	No; Known habitat types are not present within the Project area	-
Ashy sunflower	<i>Helianthus mollis</i>	A variety of well-drained, sunny openings; Dry prairies, railroad embankments, roadsides, wood borders, and clearings; Usually in neutral substrates	T	No	No; Known habitat types are not present within the Project area	-
Inland rush	<i>Juncus interior</i>	Moist to dry, open to semi-open situations; Often in sandy soil; Roadsides, prairies, meadows, fallow fields, clearings, and upland woods	T	No	No; Known habitat types are not present within the Project area	-
Potato-dandelion	<i>Krigia dandelion</i>	Open oak woods and prairies, usually in moist sandy soils	T	No	No; Known habitat types are not present within the Project area	-
Thyme-leaved pinweed	<i>Lechea minor</i>	Usually in full sun in dry, sandy woods, clearings, and roadside banks	T	No	No; Known habitat types are not present within the Project area	-
Downy white beard-tongue	<i>Penstemon pallidus</i>	Fields, roadsides, and open woods	T	No	No; Known habitat types are not present within the Project area	-

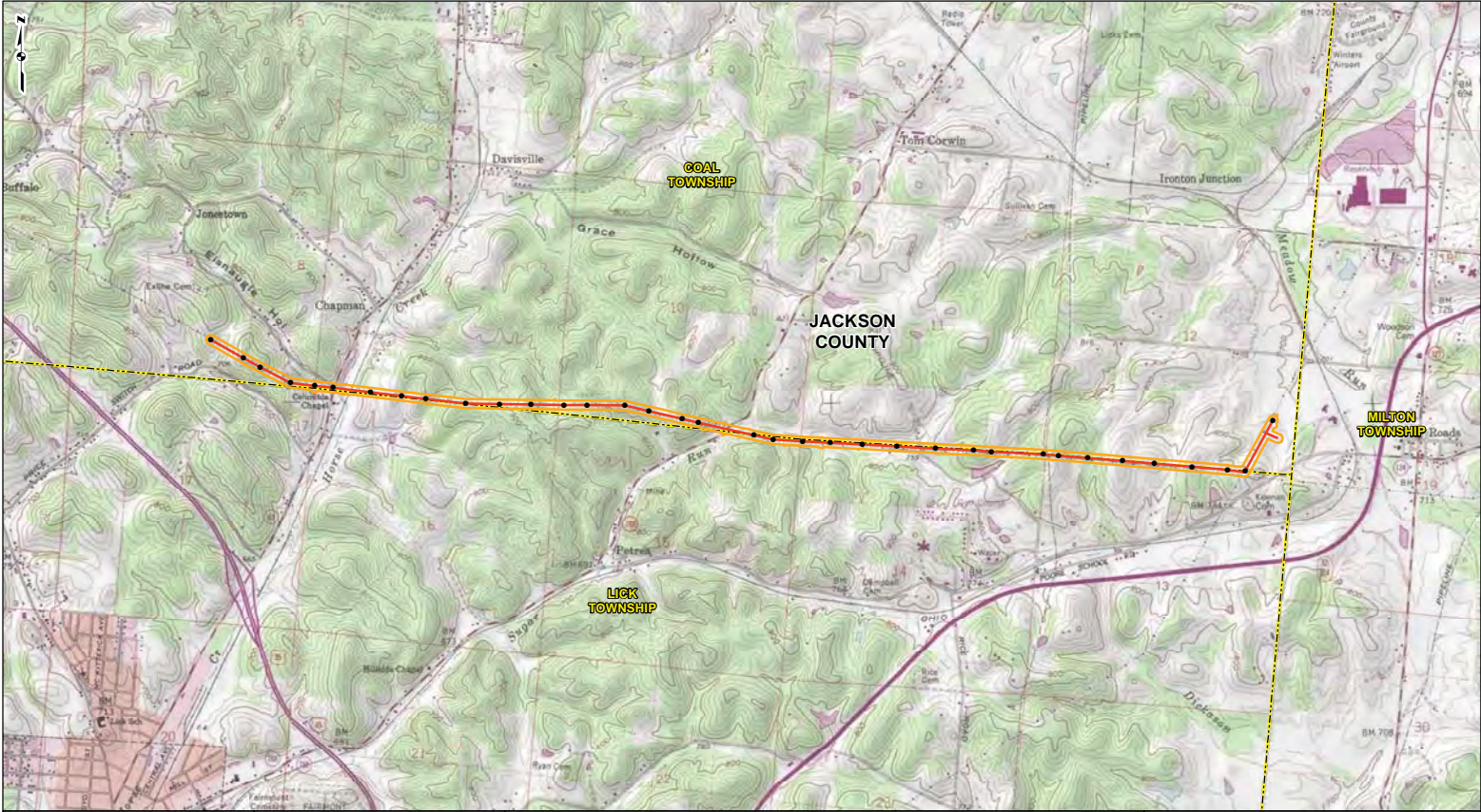
Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Plants (Cont.)						
Carolina leaf-flower	<i>Phyllanthus carolinensis</i>	A variety of moist, open to semi-open situations, usually in sandy soil; Low woods, meadows, fields, and gravelly banks	T	No	No; Known habitat types are not present within the Project area	-
Pink milkwort	<i>Polygala incarnata</i>	Open to semi-open situations in dry, often sandy soil; Open upland woods, wood borders, prairies, and old fields	T	No	No; Known habitat types are not present within the Project area	-
Tennessee pondweed	<i>Potamogeton tennesseensis</i>	Still or flowing water	T	No	No; Known habitat types are not present within the Project area	-
Spanish oak	<i>Quercus falcata</i>	Usually in dry upland woods, less frequently in alluvial woods	T	No	No; Known habitat types are not present within the Project area	-
Chalky ramalina	<i>Ramalina pollinaria</i>	Rock and bark in sheltered areas; Recent Ohio collections have all been from sandstone, either cliff face or boulders below a cliff; Prefers light shade	T	No	No; Known habitat types are not present within the Project area	-
Low spearwort	<i>Ranunculus pusillus</i>	Low wet ground, swamps, and shallow pools	T	No	No; Known habitat types are not present within the Project area	-
Great rhododendron	<i>Rhododendron maximum</i>	Moist, cool, acidic, well-drained soils; Partial shade	T	No	No; Known habitat types are not present within the Project area	-
Narrow-leaved aster	<i>Sericocarpus linifolius</i>	Dry, open to semi-open situations; Upland woods, thickets, and clearings	T	No	No; Known habitat types are not present within the Project area	-
Sweet goldenrod	<i>Solidago odora</i>	Dry woods and roadsides	T	No	No; Known habitat types are not present within the Project area	-
Prairie wedge grass	<i>Sphenopholis obtusata</i> var. <i>obtusata</i>	Very generalized; Moist to dry soil of open woods, prairies, old fields, and fen meadows	T	No	No; Known habitat types are not present within the Project area	-
Large marsh St. John's-wort	<i>Triadenum tubulosum</i>	Swamp woods, buttonbush swamps, thickets, and streambanks	T	No	No; Known habitat types are not present within the Project area	-

Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
<i>Plants (Cont.)</i>						
Walter's St. John's-wort	<i>Triadenum walteri</i>	Swamp woods, buttonbush swamps, thickets, and streambanks	T	No	No; Known habitat types are not present within the Project area	-
<i>Reptiles</i>						
Timber rattlesnake ¹	<i>Crotalus horridus</i>	Wooded areas	E, SC	Yes	No; Per the ODNR response, this Project is not likely to impact this species	-
Kirtland's snake ¹	<i>Clonophis kirtlandii</i>	Wet meadows or fields	T	Yes	No; Per the ODNR response, this Project is not likely to impact this species	-

Notes:

- ¹ Results are tentatively based upon the State Listed Species list(s) for Jackson County and will be updated once the ODNR response is received.
- ² E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; FE = federal endangered; FT = federal threatened; FSC = federal species of concern; FC = federal candidate.

FIGURES



REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 10/2017.

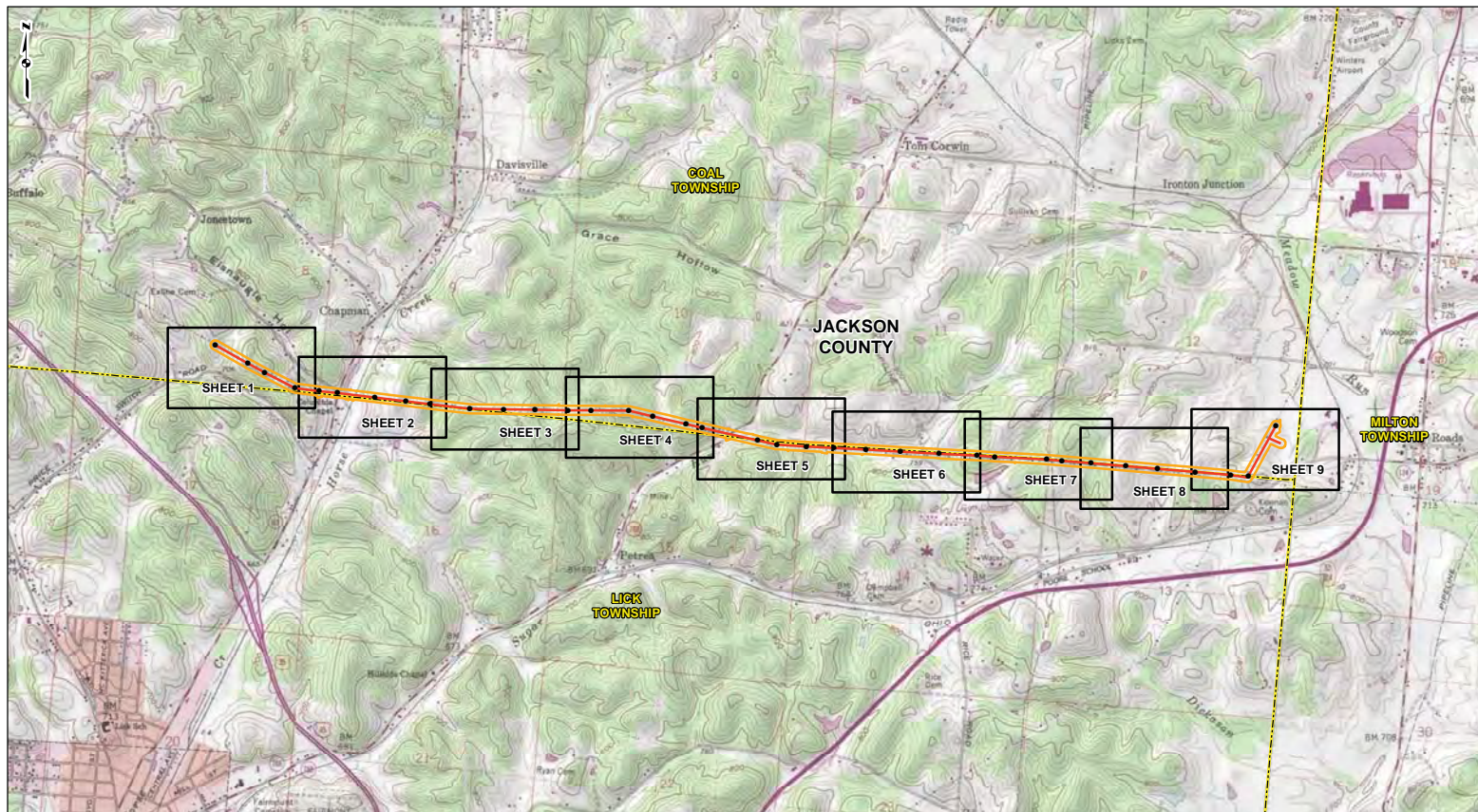
- LEGEND**
- EXISTING STRUCTURE
 - EXISTING TRANSMISSION LINE
 - STUDY AREA
 - COUNTY BOUNDARY
 - TOWNSHIP BOUNDARY

0 1,000 2,000 4,000 Feet

FIGURE 1
PROJECT LOCATION MAP

HEPPNER - RHODES
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

DRAWN BY: EFJ
CHECKED: TDB
DATE: 10/12/2017
APPROVED: ARW



REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 10/2017.

LEGEND

- EXISTING STRUCTURE
- EXISTING TRANSMISSION LINE
- STUDY AREA
- COUNTY BOUNDARY
- TOWNSHIP BOUNDARY

0 1,000 2,000 4,000 Feet

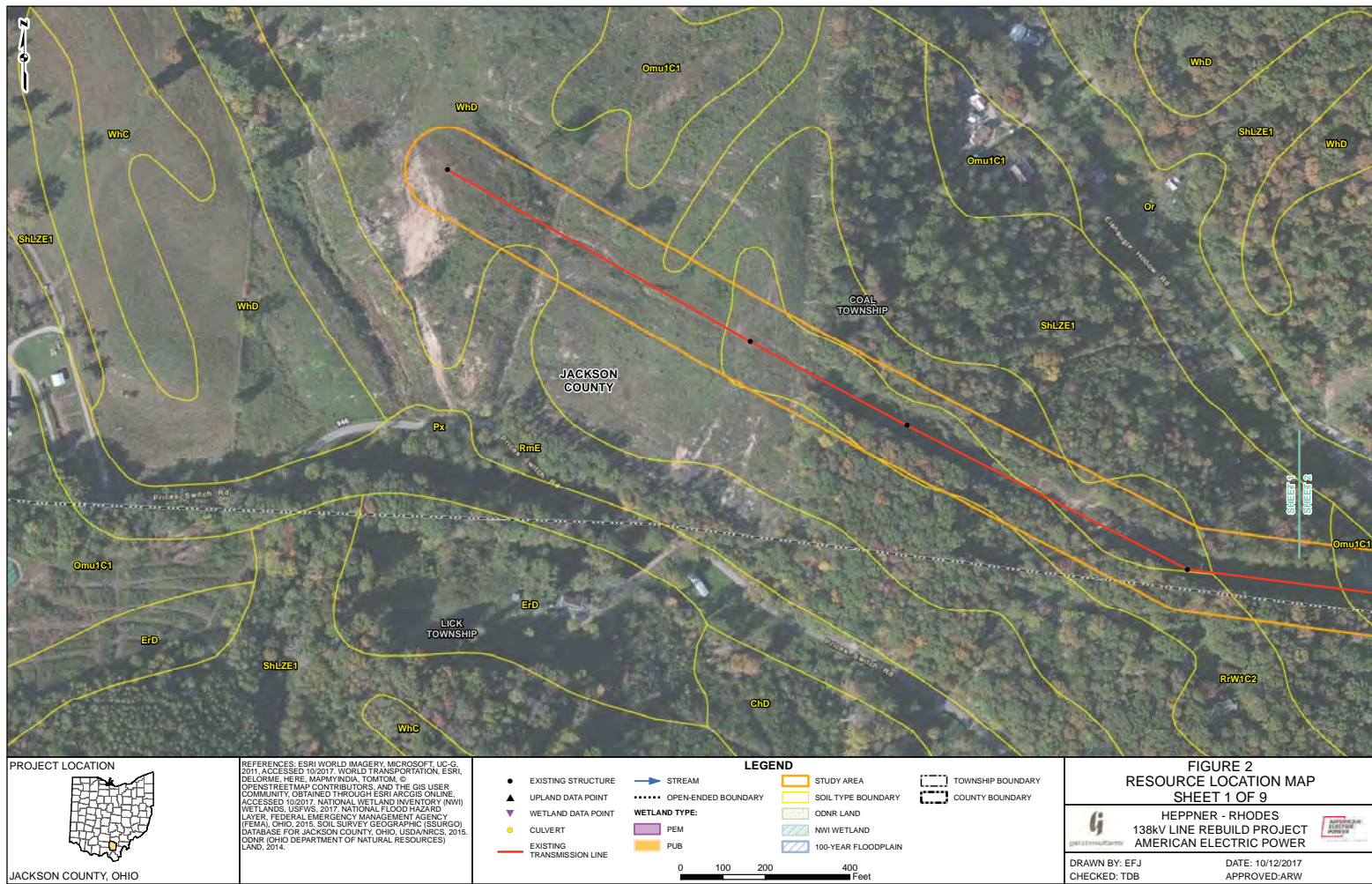
FIGURE 2 RESOURCE LOCATION MAP SHEET INDEX

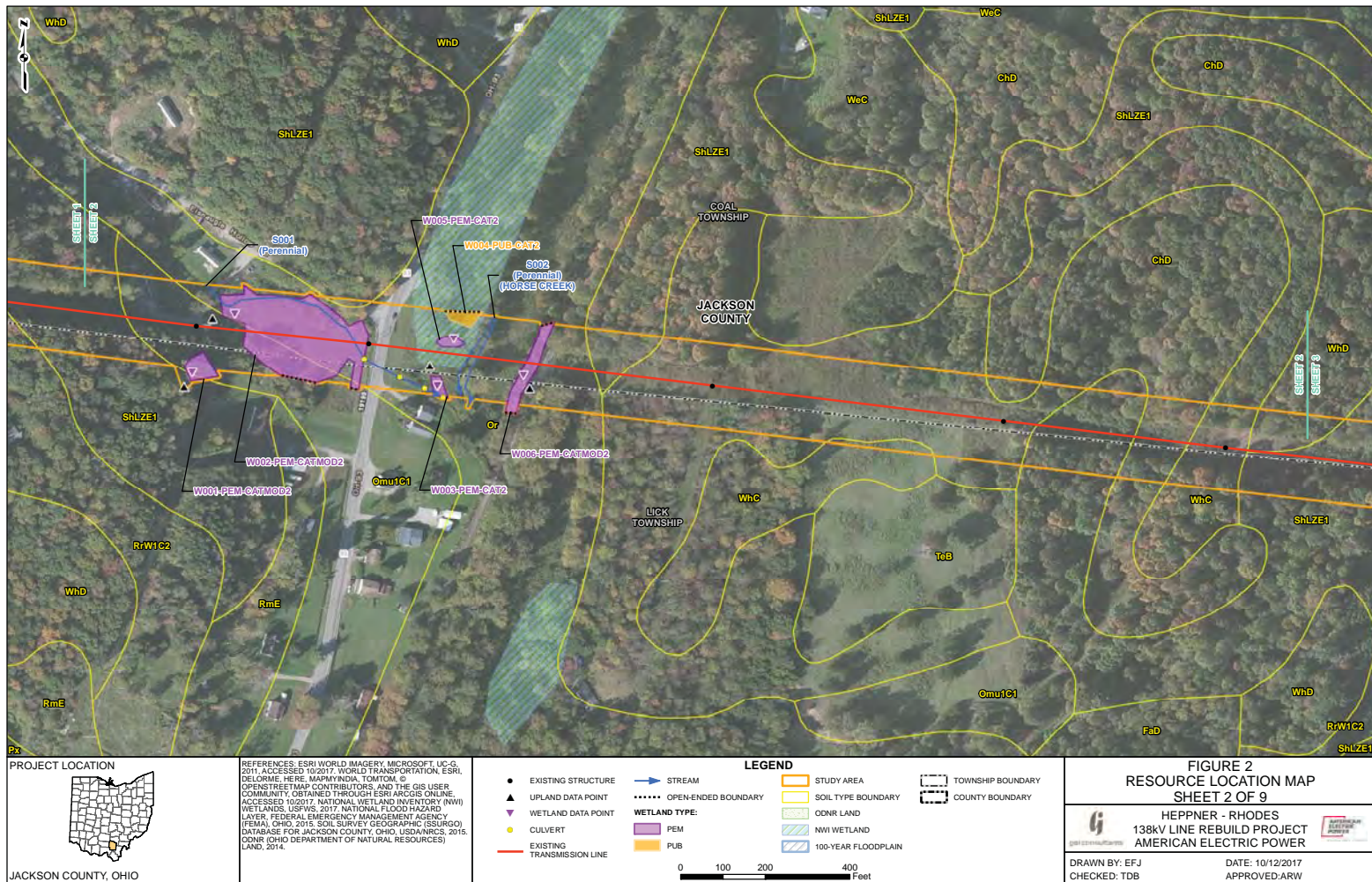
HEPPNER - RHODES
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

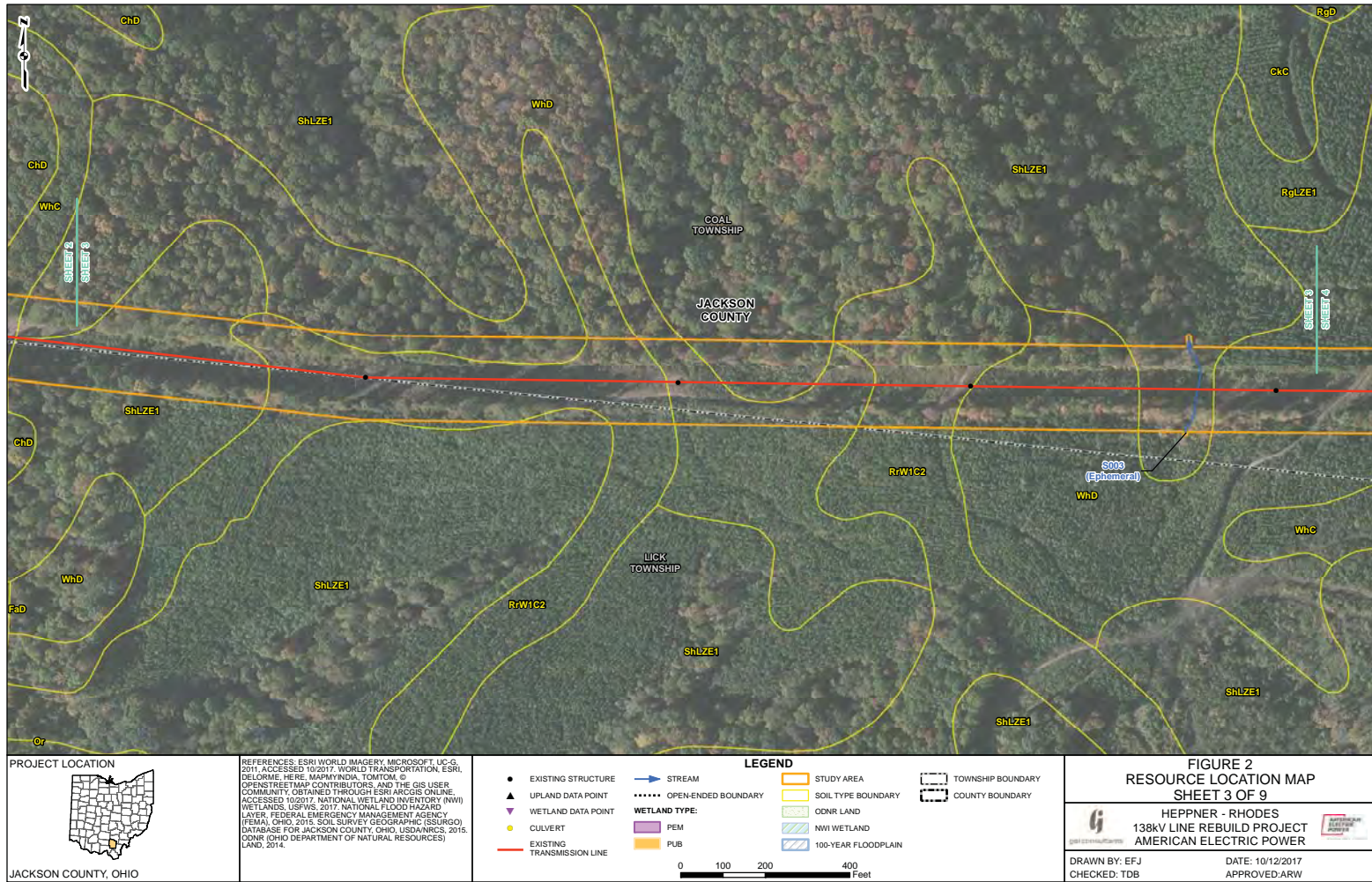
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CHECKED: TDB

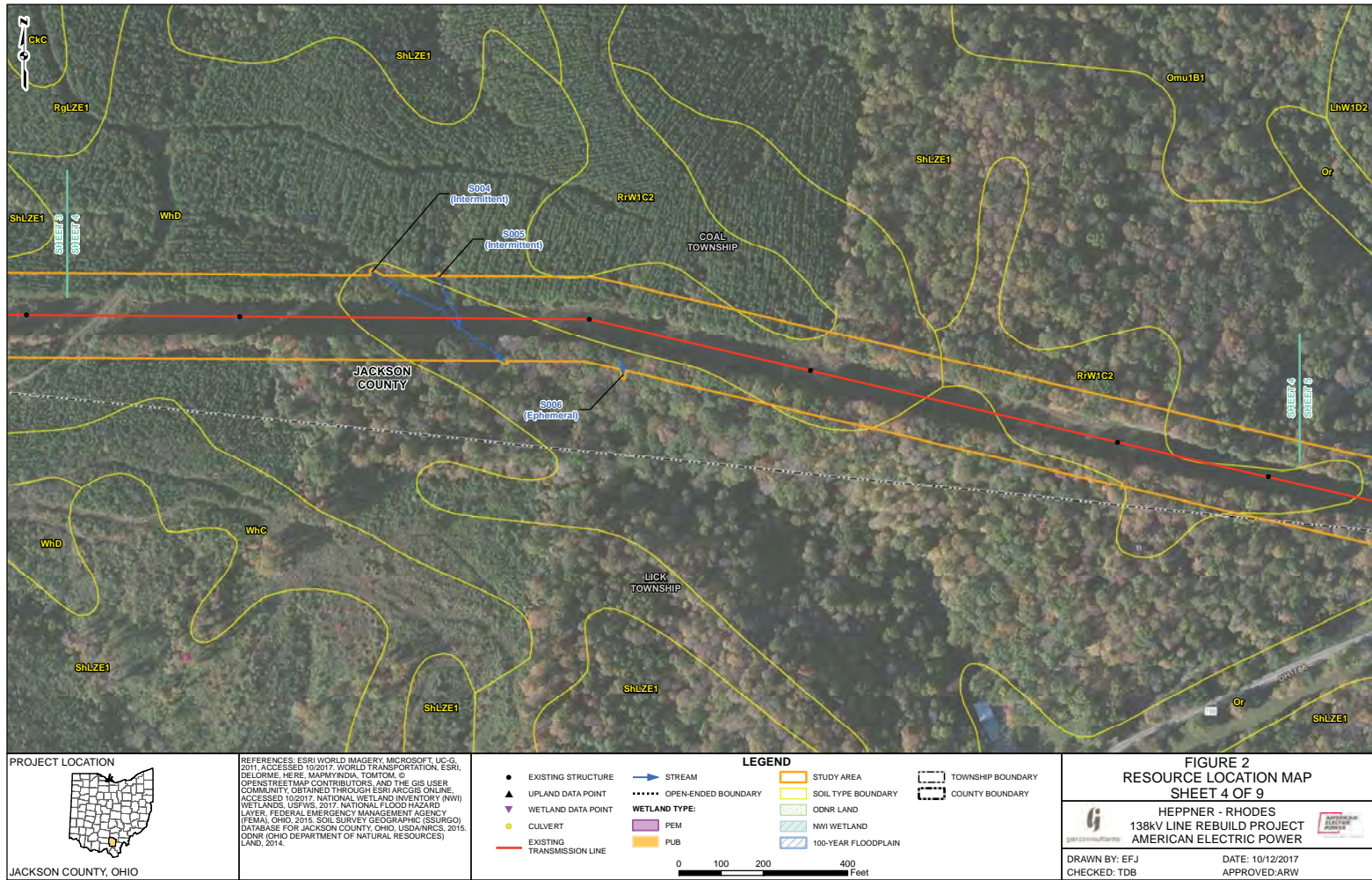
DATE: 10/12/2017
APPROVED: ARW

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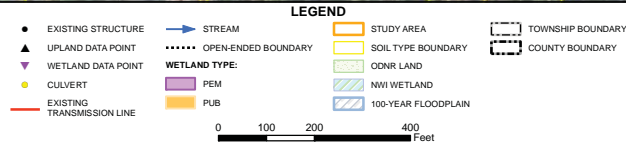




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REFERENCES: ESRI WORLD IMAGERY, MICROSOFT, UC-G, 2011, ACCESSED 10/2017; WORLD TRANSPORTATION, ESRI, DELORME, HERE, MAPMYINDIA, TOMTOM, O, OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, OBTAINED THROUGH ESRI/ARCIS ONLINE, ACCESSED 10/2017; NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2017; NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), OHIO, 2015; SOIL SURVEY GEOGRAPHIC (SSURGO) DATABASE FOR JACKSON COUNTY, OHIO, USDA/NRCS, 2015; OCMR (OHIO DEPARTMENT OF NATURAL RESOURCES) LAND, 2014.

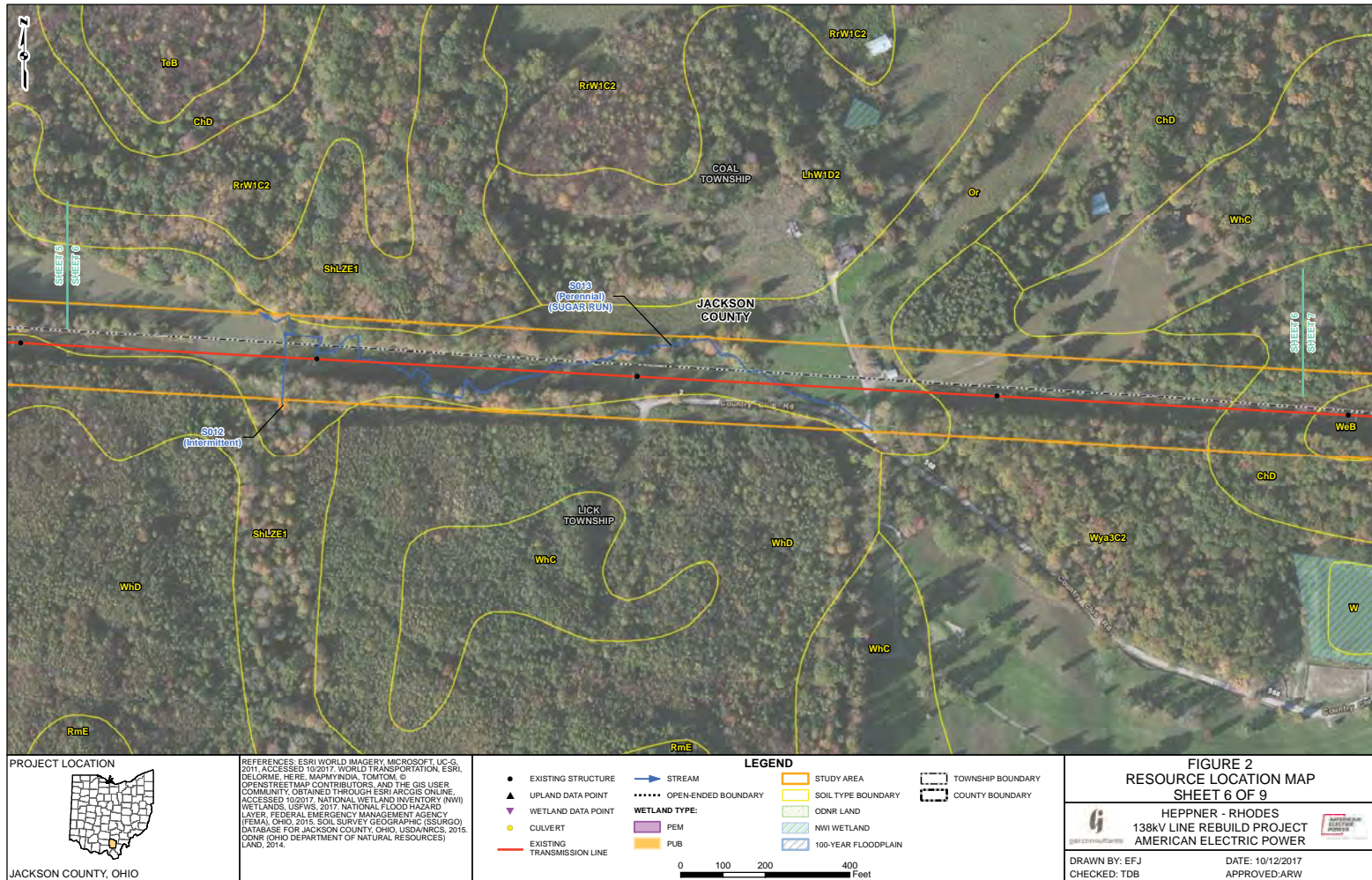


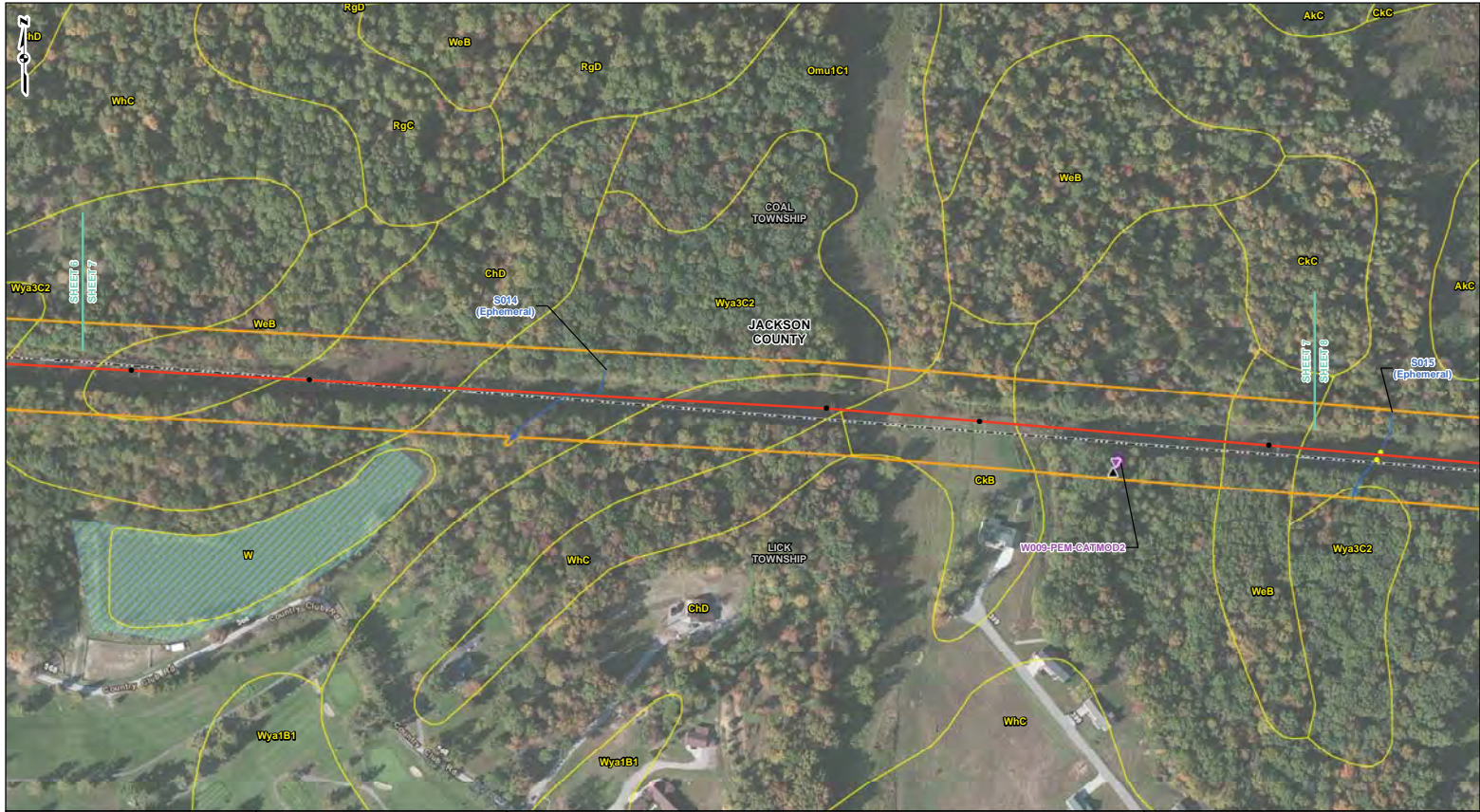
**FIGURE 2
RESOURCE LOCATION MAP
SHEET 5 OF 9**

**HEPPNER - RHODES
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER**

DRAWN BY: EFJ
CHECKED: TDB

DATE: 10/12/2017
APPROVED: ARW





REFERENCES: ESRI WORLD IMAGERY, MICROSOFT, UC-G, 2011, ACCESSED 10/2017, WORLD TRANSPORTATION, ESRI, DELORME, HERE, MAPMYINDIA, TOMTOM, O, OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, OBTAINED THROUGH ESRI/ARCIS ONLINE, ACCESSED 10/2017, NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2017, NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), OHIO, 2015, SOIL SURVEY GEOGRAPHIC (SSURGO) DATABASE FOR JACKSON COUNTY, OHIO, USDA/NRCS, 2015, ODNH (OHIO DEPARTMENT OF NATURAL RESOURCES) LAND, 2014.

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--	---	--	--	--

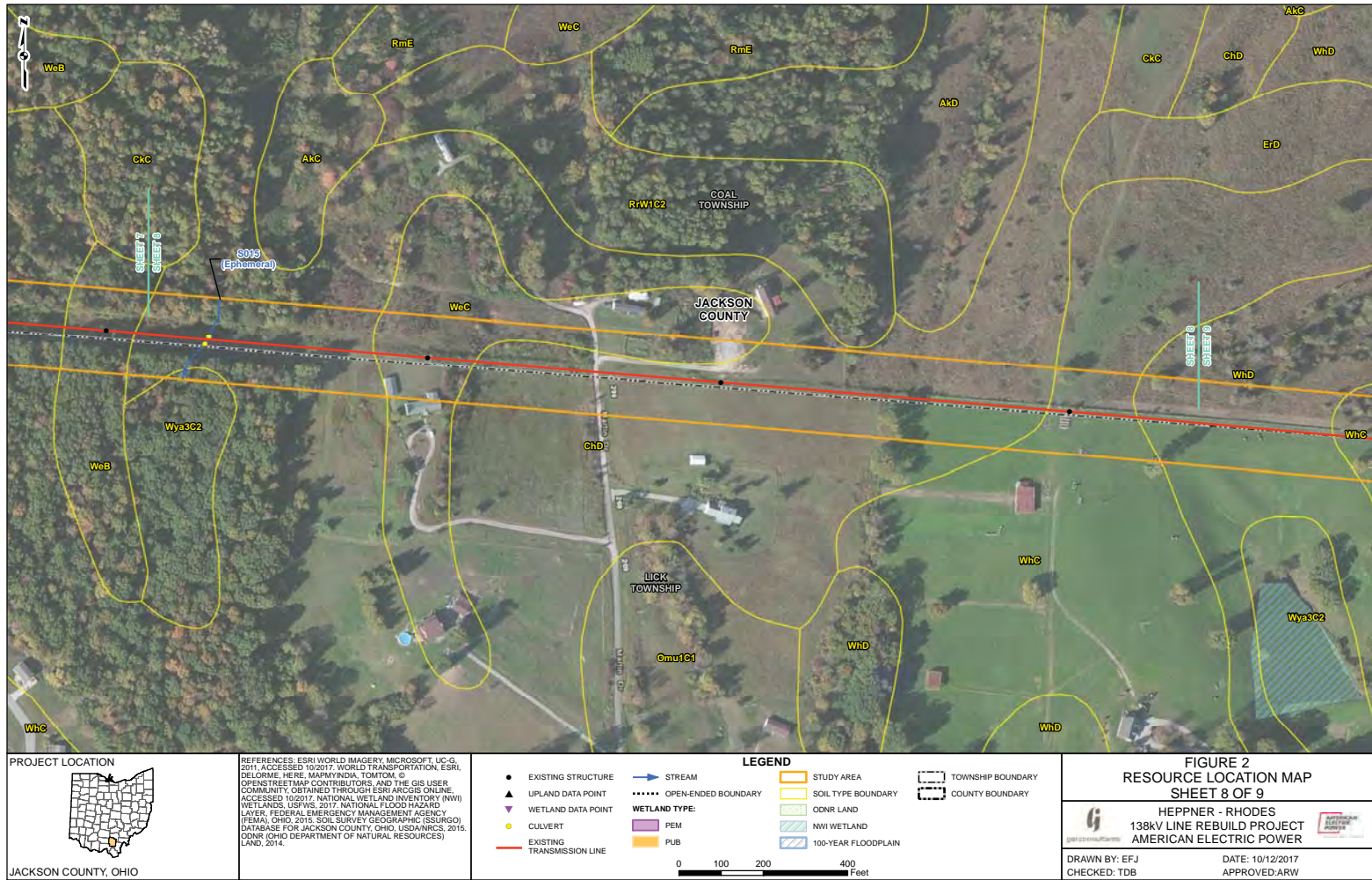
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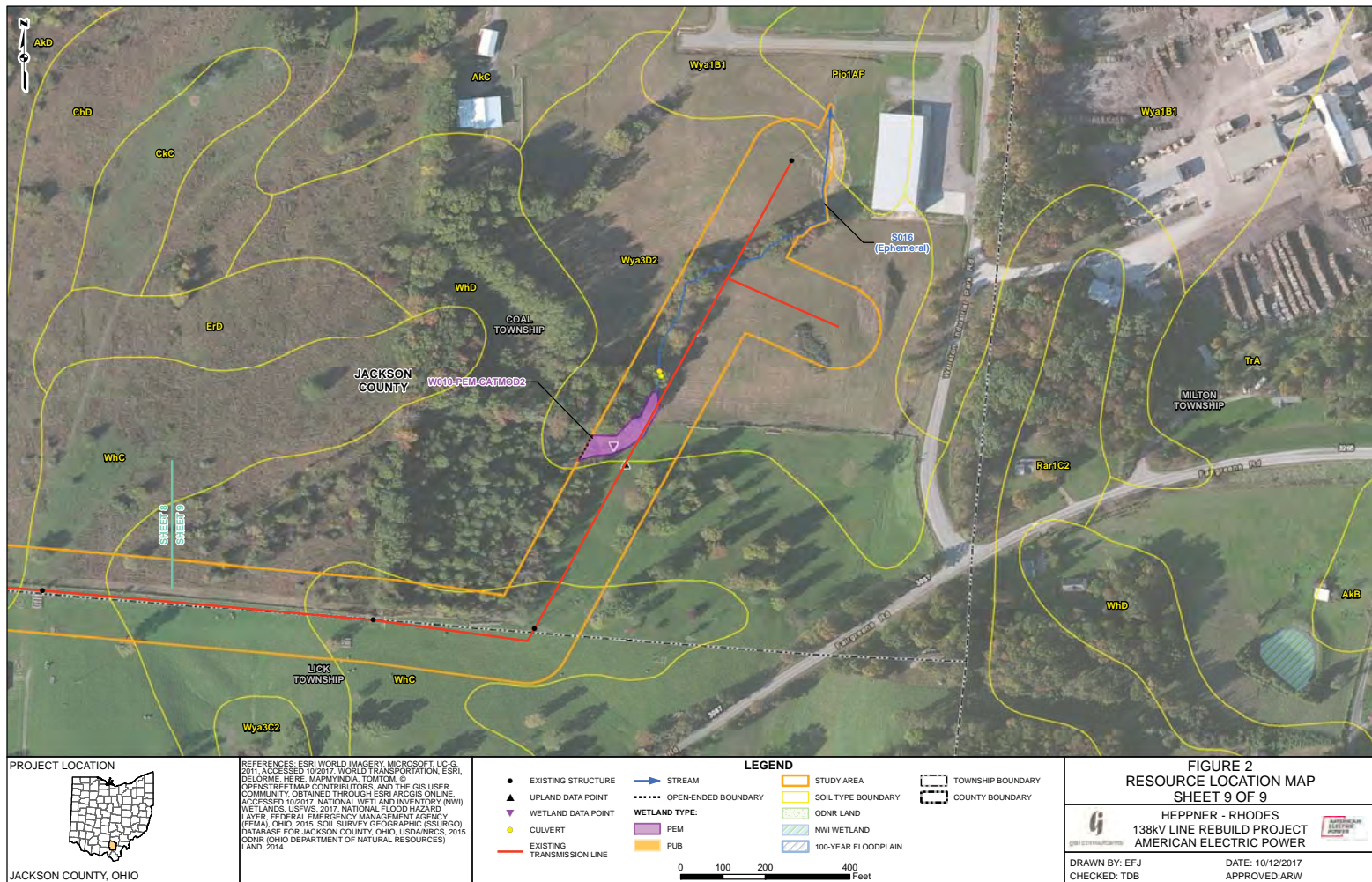
FIGURE 2
RESOURCE LOCATION MAP
SHEET 7 OF 9

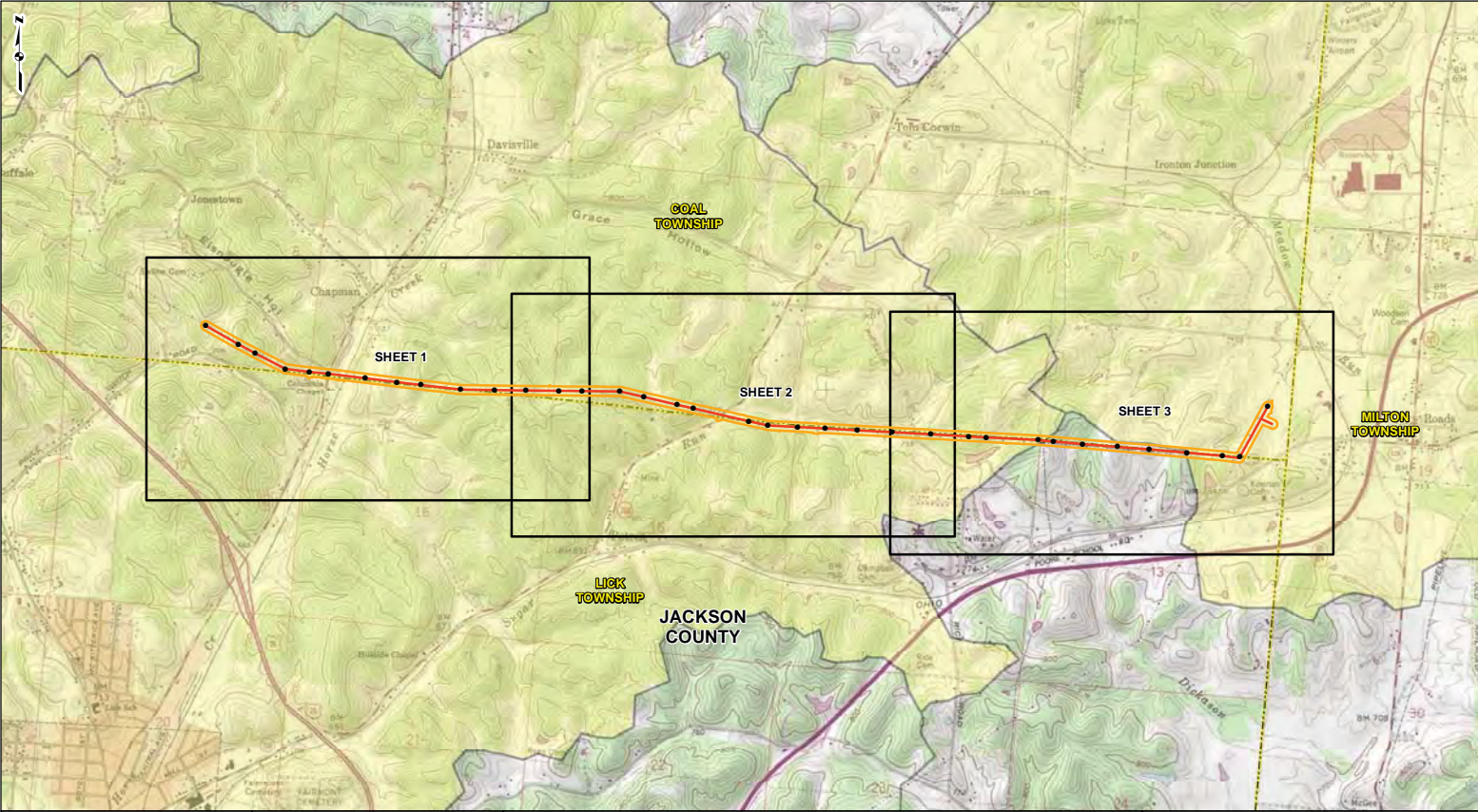
HEPPNER - RHODES
 138kV LINE REBUILD PROJECT
 AMERICAN ELECTRIC POWER

DRAWN BY: EFJ
 CHECKED: TDB

DATE: 10/12/2017
 APPROVED: ARW







REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 10/2017. STREAM ELIGIBILITY: OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA), 2017.

• EXISTING STRUCTURE

— EXISTING TRANSMISSION LINE

STUDY AREA

COUNTY BOUNDARY

TOWNSHIP BOUNDARY

OHIO EPA STREAM ELIGIBILITY

INELIGIBLE

POSSIBLY ELIGIBLE

ELIGIBLE

0

1,000

2,000

4,000

Feet

FIGURE 3

STREAM ELIGIBILITY MAP

SHEET INDEX

HEPPNER - RHODES

138kV LINE REBUILD PROJECT

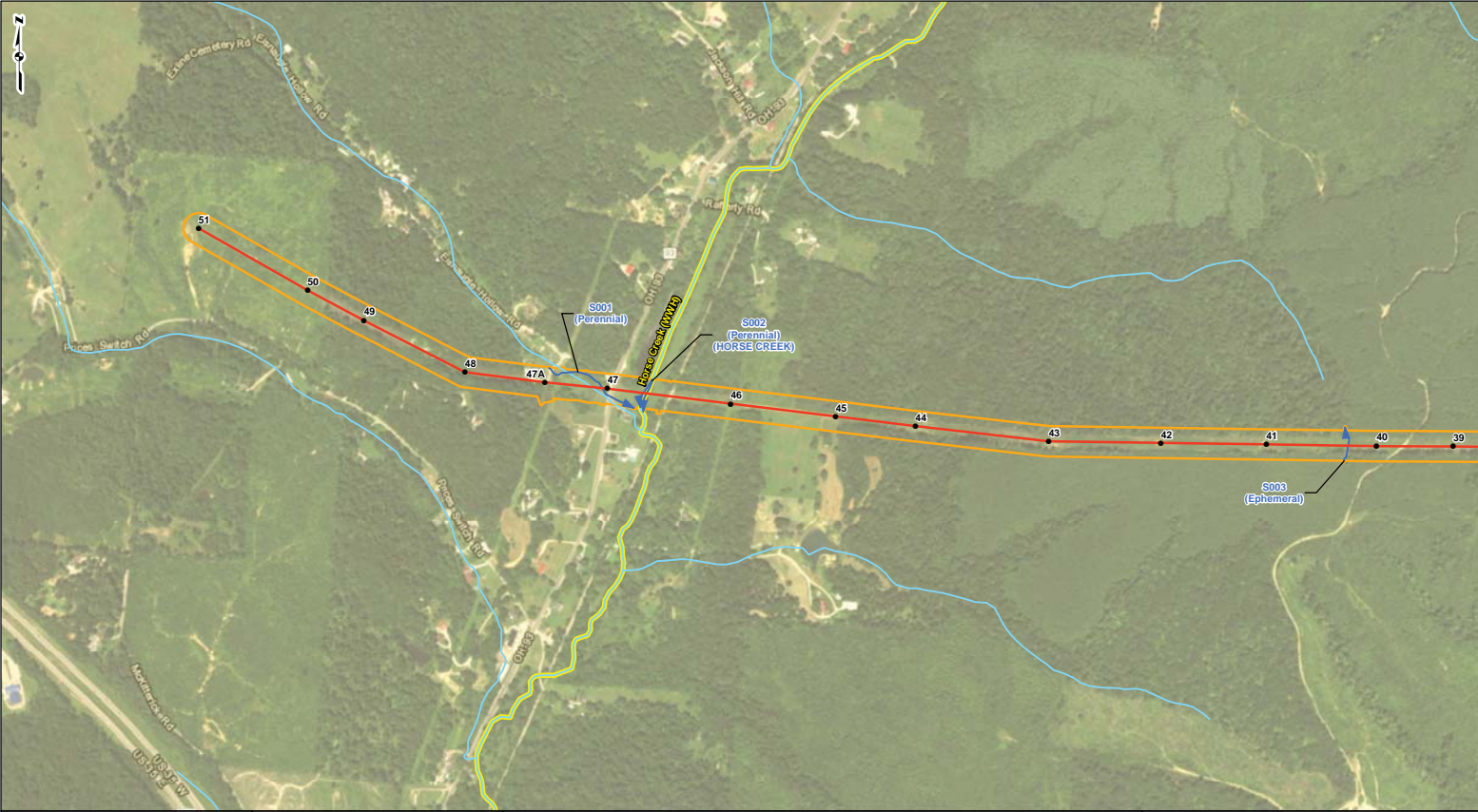
AMERICAN ELECTRIC POWER

DRAWN BY: EFJ

CHECKED: TDB

DATE: 10/12/2017

APPROVED: ARW



PROJECT LOCATION



JACKSON COUNTY, OHIO

REFERENCES: ESRI WORLD IMAGERY, NAIP, 2015, ACCESSED 10/2017; WORLD TRANSPORTATION, ESRI, DELOMRE, HERE, MAPMYINDIA, TOMTOM, O OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, OBTAINED THROUGH ESRI/ARCOS ONLINE, ACCESSED 10/2017; STREAM ELIGIBILITY, OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA), 2017; NHD STREAMS, NATIONAL HYDROGRAPHY DATASET (NHD), USGS, 2015; WQS STREAMS, OHIO WATER QUALITY STANDARDS (OH WQS), 2010.

LEGEND	
● EXISTING STRUCTURE	— NHD STREAM
— EXISTING TRANSMISSION LINE	— OH WQS STREAM
→ STREAM	— STUDY AREA
	0 300 600 1,200 Feet

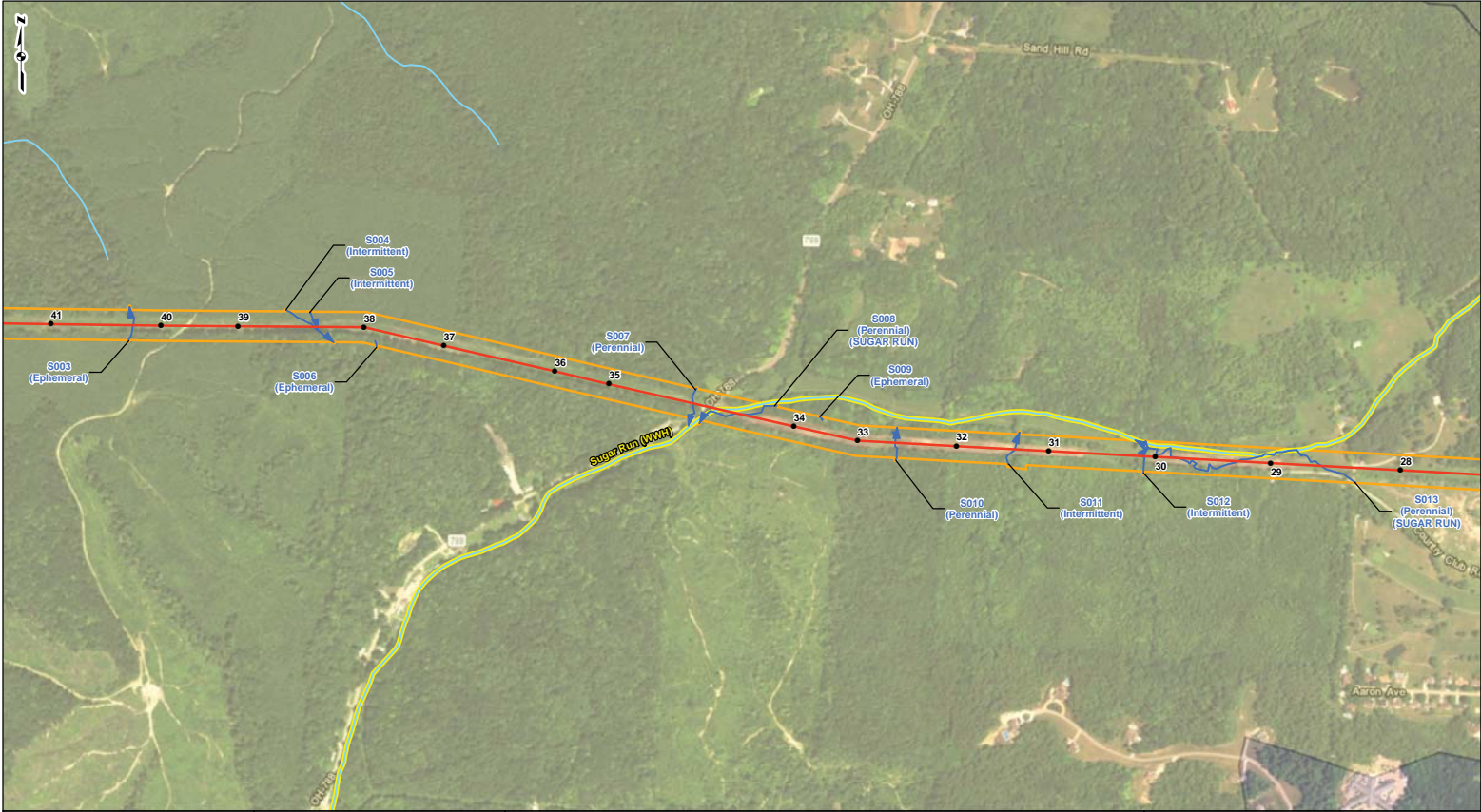
OHIO EPA STREAM ELIGIBILITY	
■ INELIGIBLE	
■ POSSIBLY ELIGIBLE	
■ ELIGIBLE	

FIGURE 3
STREAM ELIGIBILITY MAP
SHEET 1 OF 3

HEPPNER - RHODES
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

DRAWN BY: EFJ
CHECKED: TDB

DATE: 10/12/2017
APPROVED: ARW



REFERENCES: ESRI WORLD IMAGERY, NAIP, 2015, ACCESSED 10/2017; WORLD TRANSPORTATION, ESRI, DELOMIRE, HERE, MAPMYINDIA, TOMTOM, O OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, OBTAINED THROUGH ESRI/ARCOS ONLINE, ACCESSED 10/2017; STREAM ELIGIBILITY, OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA), 2017; NHD STREAMS, NATIONAL HYDROGRAPHY DATASET (NHD), USGS, 2015; WQS STREAMS, OHIO WATER QUALITY STANDARDS (OH WQS), 2010.

LEGEND	
● EXISTING STRUCTURE	— NHD STREAM
— EXISTING TRANSMISSION LINE	— OH WQS STREAM
→ STREAM	— STUDY AREA
OHIO EPA STREAM ELIGIBILITY	
	INELIGIBLE
	POSSIBLY ELIGIBLE
	ELIGIBLE

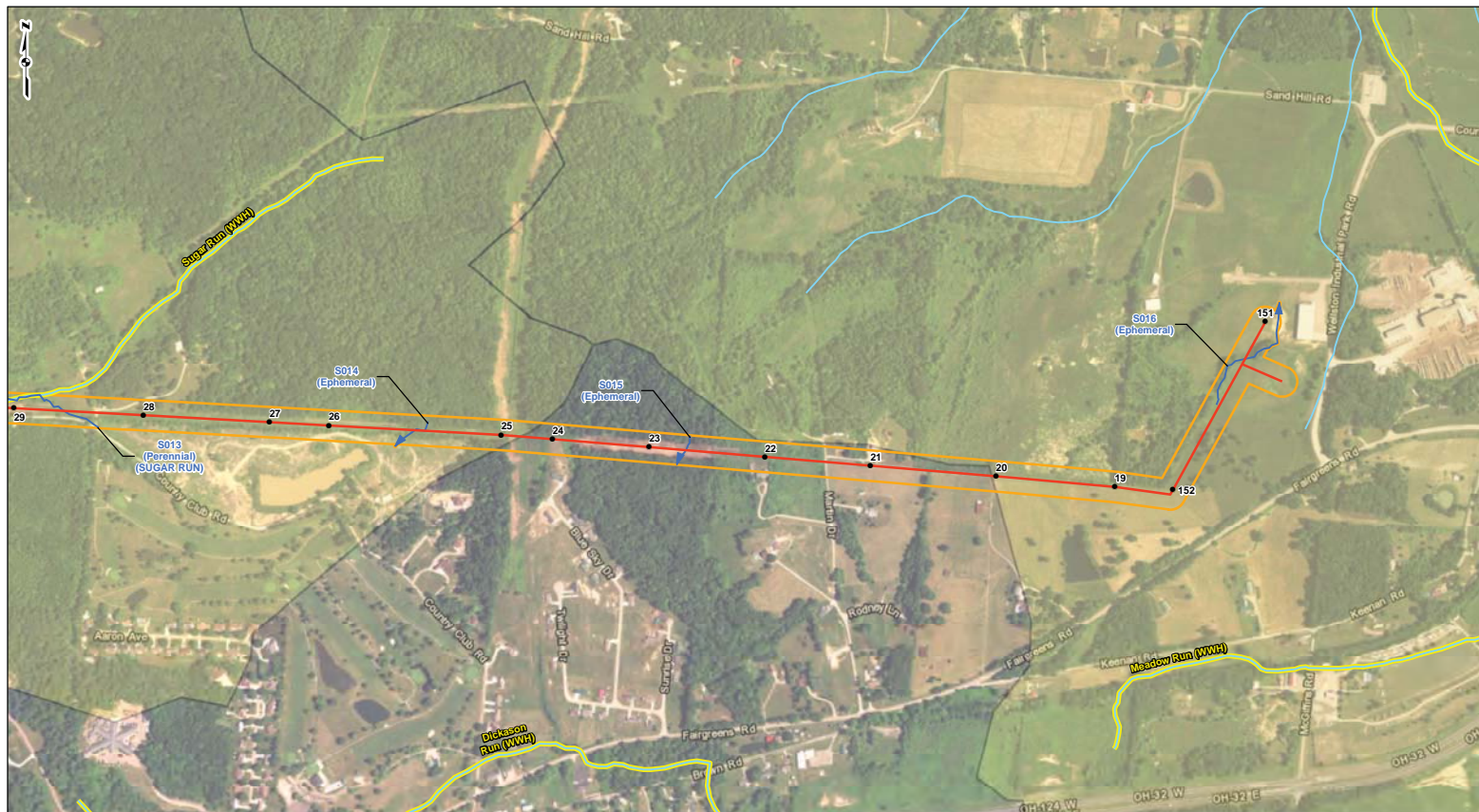
0 300 600 1,200 Feet

FIGURE 3
STREAM ELIGIBILITY MAP
SHEET 2 OF 3

HEPPNER - RHODES
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

DRAWN BY: EFJ
CHECKED: TDB

DATE: 10/12/2017
APPROVED: ARW



REFERENCES: ESRI WORLD IMAGERY, NAIP, 2015, ACCESSED 10/2017; WORLD TRANSPORTATION, ESRI, DELOMIRE, HERE, MAPMYINDIA, TOMTOM, O OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, OBTAINED THROUGH ESRI/ARCOS ONLINE, ACCESSED 10/2017; STREAM ELIGIBILITY, OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA), 2017; NHD STREAMS, NATIONAL HYDROGRAPHY DATASET (NHD), USGS, 2015; WQS STREAMS, OHIO WATER QUALITY STANDARDS (OH WQS), 2010.

- EXISTING STRUCTURE
- EXISTING TRANSMISSION LINE
- STREAM

LEGEND

- NHD STREAM
- OH WQS STREAM
- STUDY AREA

OHIO EPA STREAM ELIGIBILITY

- INELIGIBLE
- POSSIBLY ELIGIBLE
- ELIGIBLE

0 300 600 1,200 Feet

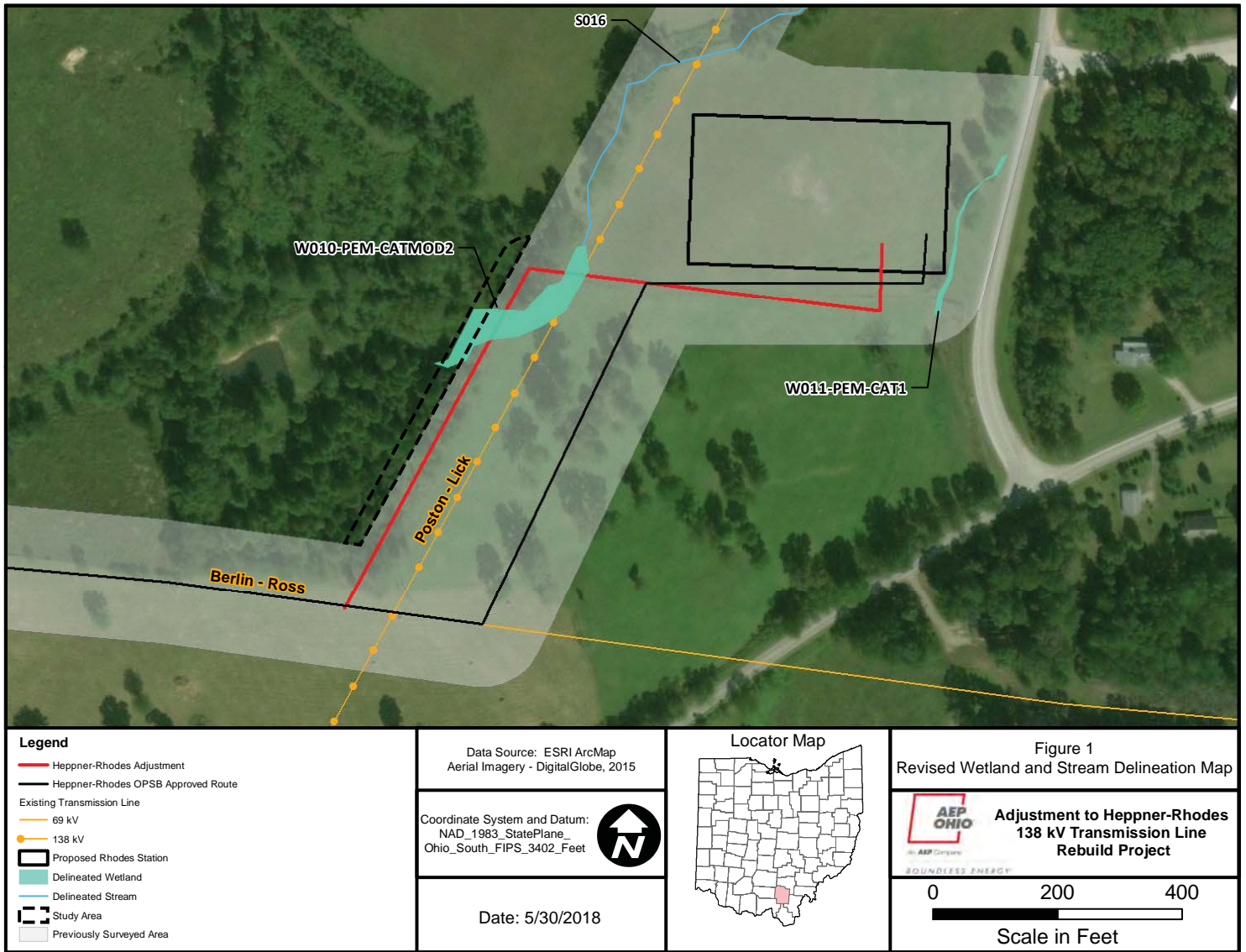
FIGURE 3 STREAM ELIGIBILITY MAP SHEET 3 OF 3

HEPPNER - RHODES
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

DRAWN BY: EFJ
CHECKED: TDB

DATE: 10/12/2017
APPROVED: ARW

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Photograph 1. Wetland W001-PEM-CATMOD2, Facing East



Photograph 2. Wetland W001-PEM-CATMOD2, Facing West



Photograph 3. Wetland W002-PEM-CATMOD2, Facing South



Photograph 4. Wetland W002-PEM-CATMOD2, Facing East



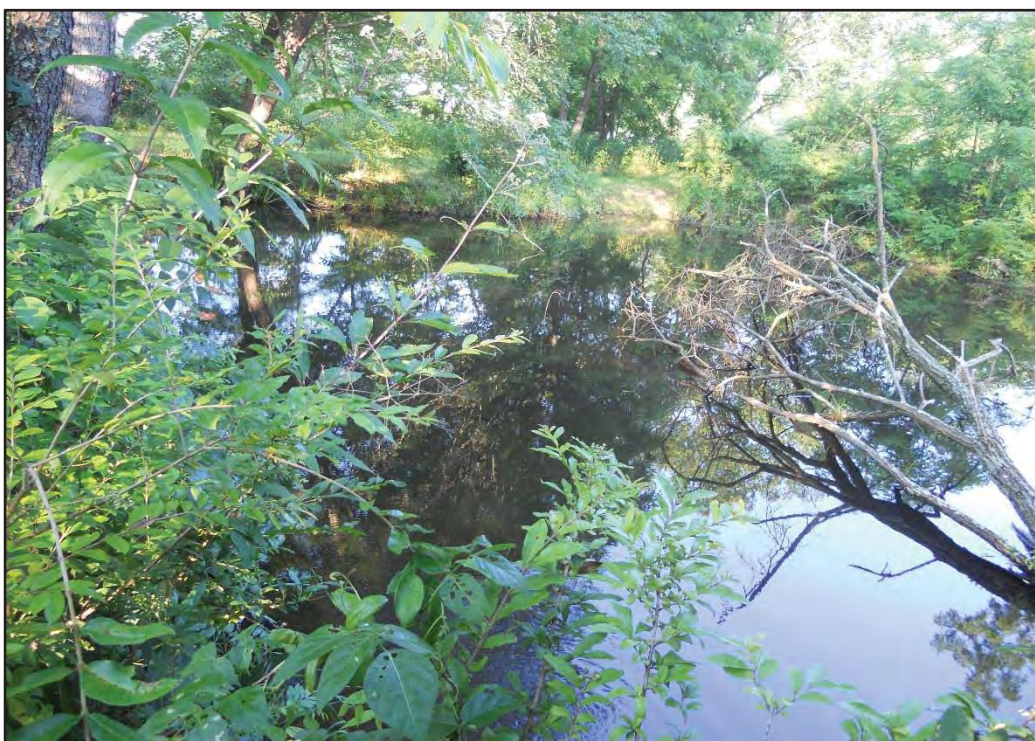
Photograph 5. Wetland W003-PEM-CAT2, Facing South



Photograph 6. Wetland W003-PEM-CAT2, Facing North



Photograph 7. Wetland W004-PUB-CAT2, Facing North



Photograph 8. Wetland W004-PUB-CAT2, Facing South



Photograph 9. Wetland W005-PEM-CAT2, Facing East



Photograph 10. Wetland W005-PEM-CAT2, Facing West



Photograph 11. Wetland W006-PEM-CATMOD2, Facing North



Photograph 12. Wetland W006-PEM-CATMOD2, Facing East



Photograph 13. Wetland W007-PUB-CAT2, Facing South



Photograph 14. Wetland W007-PUB-CAT2, Facing West



Photograph 15. Wetland W008-PEM-CAT1, Facing East



Photograph 16. Wetland W008-PEM-CAT1, Facing West



Photograph 17. Wetland W009-PEM-CATMOD2, Facing North



Photograph 18. Wetland W009-PEM-CATMOD2, Facing South



Photograph 19. Wetland W010-PEM-CATMOD2, Facing North



Photograph 20. Wetland W010-PEM-CATMOD2, Facing South



Photograph 21. Stream S001, Upstream, Facing Northwest



Photograph 22. Stream S001, Downstream, Facing Southeast



Photograph 23. Stream S002 (Horse Creek), Upstream, Facing North



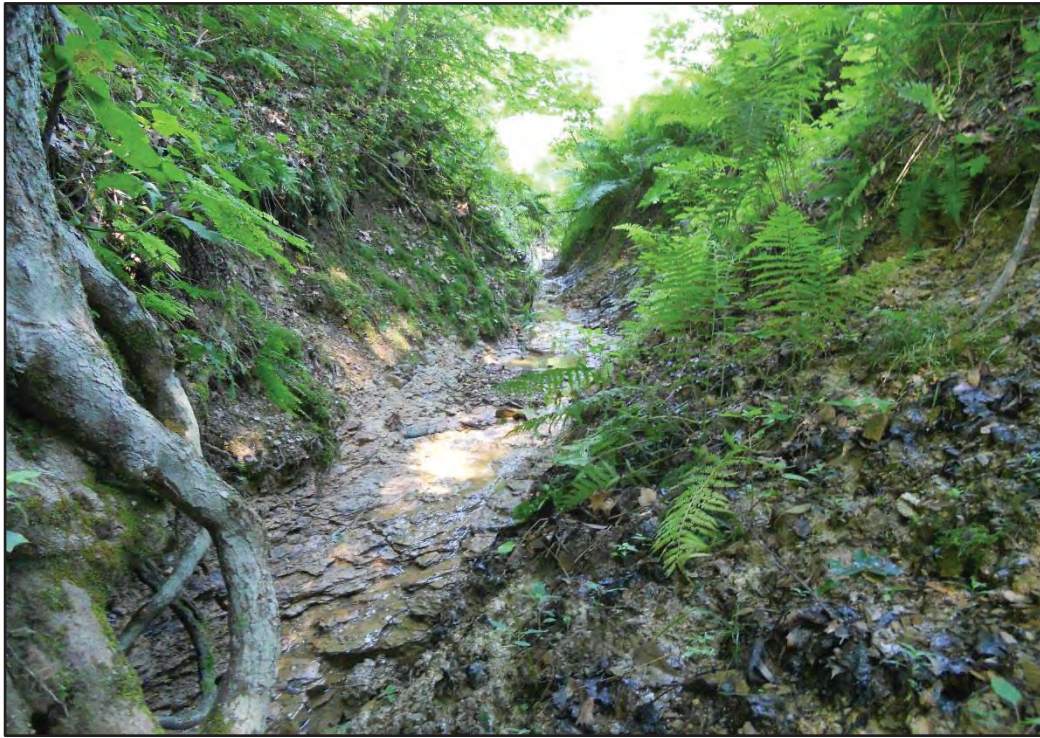
Photograph 24. Stream S002 (Horse Creek), Downstream, Facing South



Photograph 25. Stream S003, Upstream, Facing South



Photograph 26. Stream S003, Downstream, Facing North



Photograph 27. Stream S004, Upstream, Facing North



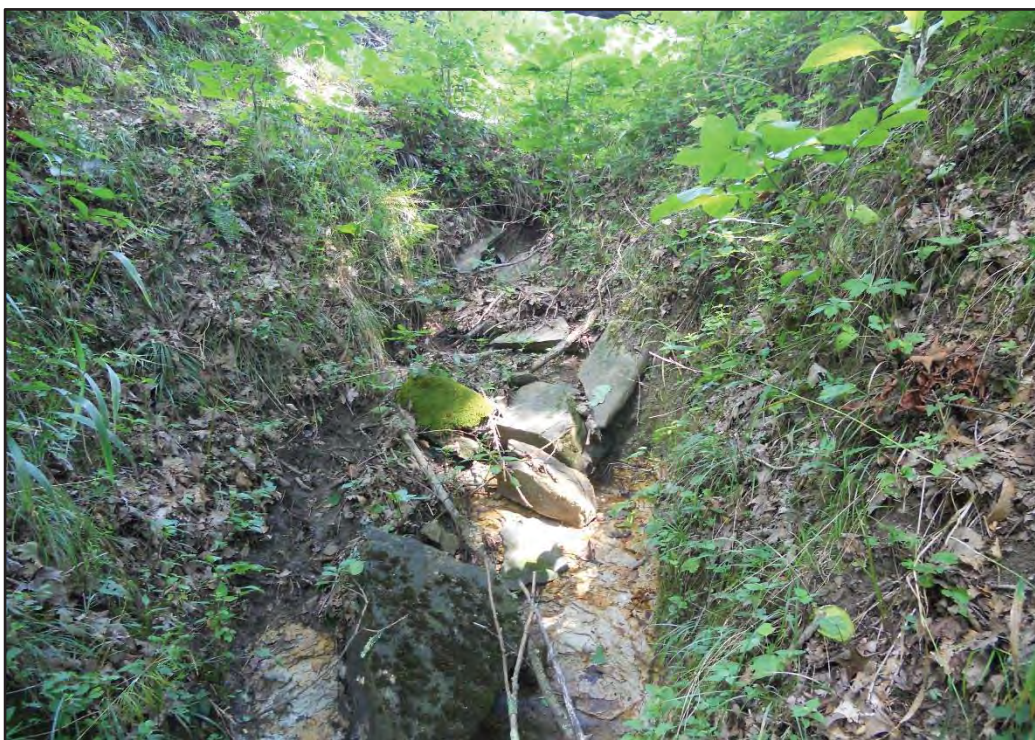
Photograph 28. Stream S004, Downstream, Facing South



Photograph 29. Stream S005, Upstream, Facing North



Photograph 30. Stream S005, Downstream, Facing South



Photograph 31. Stream S006, Upstream, Facing North



Photograph 32. Stream S006, Downstream, Facing South



Photograph 33. Stream S007, Upstream, Facing North



Photograph 34. Stream S007, Downstream, Facing Southeast



Photograph 35. Stream S008 (Sugar Run), Upstream, Facing North



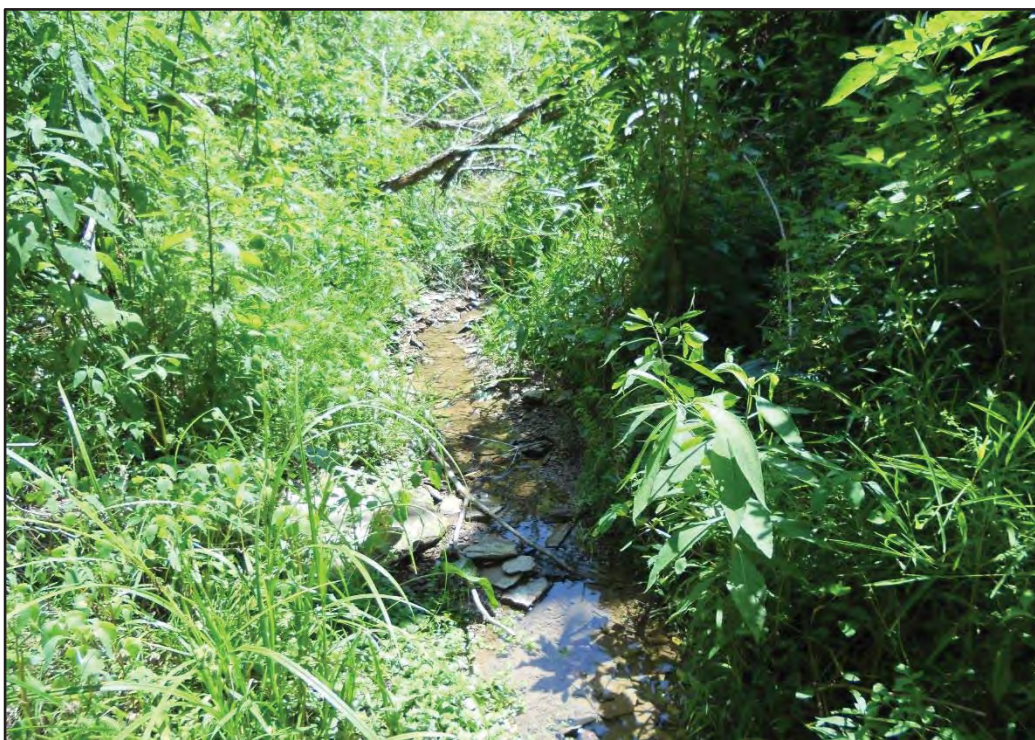
Photograph 36. Stream S008 (Sugar Run), Downstream, Facing South



Photograph 37. Stream S009, Upstream, Facing South



Photograph 38. Stream S009, Downstream, Facing North



Photograph 39. Stream S010, Upstream, Facing South



Photograph 40. Stream S010, Downstream, Facing North



Photograph 41. Stream S011, Upstream, Facing South



Photograph 42. Stream S011, Downstream, Facing North



Photograph 43. Stream S012, Upstream, Facing Southwest



Photograph 44. Stream S012, Downstream, Facing Northeast



Photograph 45. Stream S013 (Sugar Run), Upstream, Facing West



Photograph 46. Stream S013 (Sugar Run), Downstream, Facing West



Photograph 47. Stream S014, Upstream, Facing South



Photograph 48. Stream S014, Downstream, Facing North



Photograph 49. Stream S015, Upstream, Facing North



Photograph 50. Stream S015, Downstream, Facing South



Photograph 51. Stream S016, Upstream, Facing Southwest



Photograph 52. Stream S016, Downstream, Facing Northeast



Photograph 53. Representative upland habitat, Facing East



Photograph 54. Representative upland habitat (existing right-of-way), Facing East



Photograph 55. Representative upland habitat, Facing West



Photograph 56. Representative upland habitat, Facing South

APPENDIX B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hppner to Rhodes City/County: Jackson Co. Sampling Date: 7/13/2017
 Applicant/Owner: AEP State: OH Sampling Point: W001 (PEM)
 Investigator(s): KLV Section, Township, Range: Lick Twp.
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 0%
 Subregion (LRR or MLRA): LRR Lat: 39.08409998 Long: -82.62319687 Datum: NAD 83
 Soil Map Unit Name: shLZE1-Shelctd-Latham association, Steep NWI classification: PUBGX

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		

Remarks: Wetland data point for W001 -PEM-CATMOD2.
Data point taken in maintained transmission ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|--|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Iron Deposits (B5) | |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |
| <input type="checkbox"/> Aquatic Fauna (B13) | |

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>6"</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Wetland hydrology indicators are A1, A3, C3, D2, and D5.

Tree Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
		0	= Total Cover	

Sapling/Shrub Stratum	(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra		5	Y	Obl
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		5	= Total Cover	

Herb Stratum	(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Typha x glauca		15	Y	Obl
2. Onoclea sensibilis		10	N	FACW
3. Juncus effusus		20	Y	FACW
4. Eupatorium perfoliatum		10	N	FACW
5. Agrimonia parviflora		10	N	FACW
6. Carex lurida		15	Y	Obl
7.				
8.				
9.				
10.				
11.				
12.				
		80	= Total Cover	

Woody Vine Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
		0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

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

Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic veg. is present - passes the dominance test

(PEM)

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Dark Surface (S7) | <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) | <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> (MLRA 136, 147) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR N) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147,148) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147) | |

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

Type: _____

Depth (inches): _____

Hydric		
Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Meets F3

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hopper to Lick 138 City/County: Jackson Co. Sampling Date: 7/13/2017
 Applicant/Owner: AEP State: OH Sampling Point: W001 -UPL
 Investigator(s): KLV Section, Township, Range: Lick Twp.
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%) 01
 Subregion (LRR or MLRA): LRR Lat: 39.08400813 Long: -82.162326409 Datum: NAD 83
 Soil Map Unit Name: ShLZE1-Shelctd-Latham association, steep NWI classification: N/A

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

Are Vegetation yes Soil no, or Hydrology no significantly disturbed? Yes ☒ No ☐

Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks)

(If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			

Remarks: Upland data point for W001

Data point taken in maintained transmission ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Iron Deposits (B5) | |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |
| <input type="checkbox"/> Aquatic Fauna (B13) | |

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Wetland hydrology is not present

Tree Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	none				
2.					
3.					
4.					
5.					
6.					
7.					
			0	= Total Cover	

Sapling/Shrub Stratum		(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.	Rubus alleniensis		40	Y	FACU
2.	Sassafras albidum		10	N	FACU
3.	Liriodendron tulipifera		10	N	FACU
4.	Acer rubrum		15	Y	FAC
5.					
6.					
7.					
8.					
9.					
10.					
			75	= Total Cover	

Herb Stratum		(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1.	Panicum clandestinum		40	Y	FAC
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
			40	= Total Cover	

Woody Vine Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	none				
2.					
3.					
4.					
5.					
6.					
			0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67.1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 = <u>165</u>
FACU species	x 4 = <u>240</u>
UPL species	x 5 =
Column Totals:	<u>115</u> (A) <u>405</u> (B)
Prevalence Index = B/A = <u>3.5</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is $\leq 3.0^1$
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present?

Yes ☐ No ☒

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

Upland veg. is dominant.

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Dark Surface (S7) | <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) | <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> (MLRA 136, 147) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR N) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147,148) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147) | |

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

Hydric

Soil Present?

Yes

No ☒

Hydric Soils are not present

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Rhodes City/County: Jackson Co. Sampling Date: 7/17/2017
 Applicant/Owner: AEF State: OH Sampling Point: W002 (PEM)
 Investigator(s): KLV Section, Township, Range: Coal Twp.
 Landform (hillslope, terrace, etc.): DIP Local relief (concave, convex, none): concave Slope (%) 0.1
 Subregion (LRR or MLRA): LRRP Lat: 39.08448152 Long: -82.62284211 Datum: NAD 83
 Soil Map Unit Name: Or - Orrville Silt loam, 0 to 3%, frequently flooded NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

Remarks: Wetland data point for W002 PEM-CATMOD2
Data point taken in maintained transmission Row and adjacent to residential property.

HYDROLOGY

Wetland Hydrology Indicators:

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

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Iron Deposits (B5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <u>2"</u>
Water Table Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <u>0</u>
Saturation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <u>0</u>

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Wetland hydrology Indicators are A1, A2, A3, C3, D2, and D5.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>none</u>				
2.				
3.				
4.				
5.				
6.				
7.				
		<u>0</u>	= Total Cover	

Sapling/Shrub Stratum	(Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>none</u>				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		<u>0</u>	= Total Cover	

Herb Stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Onoclea sensibilis</u>		<u>20</u>	<u>Y</u>	<u>FACW</u>
2. <u>Typha x glauca</u>		<u>10</u>	<u>N</u>	<u>Obl</u>
3. <u>Impatiens capensis</u>		<u>15</u>	<u>Y</u>	<u>FACW</u>
4. <u>Juncus effusus</u>		<u>10</u>	<u>N</u>	<u>FACW</u>
5. <u>Carex lurida</u>		<u>15</u>	<u>Y</u>	<u>Obl</u>
6. <u>Mimulus alatus</u>		<u>5</u>	<u>N</u>	<u>Obl</u>
7.				
8.				
9.				
10.				
11.				
12.				
		<u>75</u>	= Total Cover	

Woody Vine Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>none</u>				
2.				
3.				
4.				
5.				
6.				
		<u>0</u>	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0¹

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

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

wetland veg is dominant - passes the dominance test and rapid test.

Sampling Point: W002 (PEM)

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

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

Hydric			
Soil Present?	Yes	✓	No

Meets F3.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Rhodes City/County: Jackson Co. Sampling Date: 7/17/2017
 Applicant/Owner: AEP State: OH Sampling Point: W002 - UPL
 Investigator(s): KLV Section, Township, Range: Coal Twp.
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%) 0%
 Subregion (LRR or MLRA): LRR Lat: 39.08445276 Long: -82.62302761 Datum: NAD83
 Soil Map Unit Name: Omulcl-Omulga Silt loam, 1 to 12% slopes NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒
 Hydric Soil Present? Yes ☐ No ☒
 Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area within a Wetland?

Yes ☐ No ☒

Remarks:

Upland data point for W002.
 Data point taken in maintained transmission ROW and residential property.

HYDROLOGY

Wetland Hydrology Indicators:

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

☐ Surface Water (A1) ☐ True Aquatic Plants (B14)
☐ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1)
☐ Saturation (A3) ☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Water Marks (B1) ☐ Presence of Reduced Iron (C4)
☐ Sediment Deposits (B2) ☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Drift Deposits (B3) ☐ Thin Muck Surface (C7)
☐ Algal Mat or Crust (B4) ☐ Other (Explain in Remarks)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Wetland hydrology is not present.

Tree Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
		0	= Total Cover	

Sapling/Shrub Stratum	(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Robinia pseudacacia		5	✓	FACU
2. Rhus copallinum		10	✓	FACU
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		15	= Total Cover	

Herb Stratum	(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Glechoma hederacea		30	✓	FACU
2. Poa pratensis		20	✓	FACU
3. Taraxacum officinale		10	✓	FACU
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		60	= Total Cover	

Woody Vine Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
		0	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? Yes No ☒

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

Upland veg. is dominant.

Sampling Point: W002 -UPL

[illegible]²Location: PL=Pore Lining, M=Matrix.

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

Soil Present?	Yes	No	✓
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marks: Hydric Soils are not present.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hopson to Rhodes City/County: Jackson Co Sampling Date: 7/17/2017
 Applicant/Owner: AEP State: OH Sampling Point: W003 (PEM)
 Investigator(s): KLV Section, Township, Range: Lick Twp.
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 0/
 Subregion (LRR or MLRA): LRR Lat: 39.08401624 Long: -82.6215496 Datum: NAD83
 Soil Map Unit Name: Or-Orville Silty loam, 0 to 3% slopes, frequently flooded NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

Remarks: Wetland data point for W003 - PEM-CAT2.

Data point taken in maintained transmission ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Iron Deposits (B5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>
Saturation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Wetland Hydrology Indicators are C3, D2, and D5.

Tree Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
		0	= Total Cover	

Sapling/Shrub Stratum	(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		0	= Total Cover	

Herb Stratum	(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Eupatorium perfoliatum		5	N	FACW
2. Scirpus atrovirens		10	N	Obl
3. Impatiens capensis		15	N	FACW
4. Carex lurida		15	N	Obl
5. Carex vulpinoidea		10	N	Obl
6. Agrimonia parviflora		25	N	FACW
7. Asclepias incarnata		5	N	Obl
8.				
9.				
10.				
11.				
12.				
		85	= Total Cover	

Woody Vine Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
		0	= Total Cover	

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 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0¹

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

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic veg is dominant. -passes the rapid test & dominance test.

Sampling Point: W003 (PEM)

[illegible]²Location: PL=Pore Lining, M=Matrix.

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147,148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

Hydric		
Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Mets F3.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hoppen to Rhodes City/County: Jackson Co. Sampling Date: 7/17/2017
Applicant/Owner: AEP State: OH Sampling Point: W003/005 - UPL
Investigator(s): KLV Section, Township, Range: Coal Twp.
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%) 01
Subregion (LRR or MLRA): LRR Lat: 39.08414595 Long: -82.62121698 Datum: NAD83
Soil Map Unit Name: Or-Orrville Silt loam, 0 to 3% slopes, frequently flooded NWI classification: N/A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒
Hydric Soil Present? Yes ☐ No ☒
Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area within a Wetland?

Yes ☐No ☒

Remarks:

Upland data point for W003 and W005
Data point taken in maintained transmission ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

☐ Surface Water (A1) ☐ True Aquatic Plants (B14)
☐ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1)
☐ Saturation (A3) ☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Water Marks (B1) ☐ Presence of Reduced Iron (C4)
☐ Sediment Deposits (B2) ☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Drift Deposits (B3) ☐ Thin Muck Surface (C7)
☐ Algal Mat or Crust (B4) ☐ Other (Explain in Remarks)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present?

Yes ☐No ☒

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

Remarks:

Wetland Hydrology Indicators are not present.

Tree Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
		0	= Total Cover	

Sapling/Shrub Stratum	(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		0	= Total Cover	

Herb Stratum	(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Solidago canadensis		35	Y	Facu
2. Daucus carota		10	N	Facu
3. Agrimonia parviflora		5	N	Facu
4. Vernonia gigantea		15	Y	Facu
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		65	= Total Cover	

Woody Vine Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
		0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation

Present? Yes No ☒

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

Upland veg. is dominant

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Rhodes City/County: Jackson Co Sampling Date: 7/18/2017
 Applicant/Owner: AEP State: OH Sampling Point: W005 (PEM)
 Investigator(s): KLV Section, Township, Range: Coal Twp.
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 0/
 Subregion (LRR or MLRA): LRR Lat: 39.08432477 Long: -82.62101983 Datum: NAD83
 Soil Map Unit Name: Or-Orville Silt loam, 0 to 3% slopes, frequently flooded NWI classification: N/A

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks: <u>Wetland, data point for W005 -PEM-CAT2.</u> <u>Data point taken at edge of maintained transmission ROW and between NW(PEM) and riparian of Hourse Creek.</u>					

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required, check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1"</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		

Remarks: Wetland Hydrology Indicators are A1, A2, A3, C3, D2, and D5.

Tree Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	Salix nigra		10	Y	Obl
2.	Platanus occidentalis		5	Y	FACW
3.					
4.					
5.					
6.					
7.					
			15	= Total Cover	

Sapling/Shrub Stratum		(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.	Acer rubrum		10	Y	FAC
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
			10	= Total Cover	

Herb Stratum		(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1.	Impatiens capensis		20	Y	FACW
2.	Leersia oryzoides		50	Y	Obl
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
			70	= Total Cover	

Woody Vine Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	none				
2.					
3.					
4.					
5.					
6.					
			0	= Total Cover	

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 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0¹

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

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic veg is dominant - passes the dominance test.

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Dark Surface (S7) | <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) | <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> (MLRA 136, 147) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR N) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input checked="" type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147,148) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147) | |

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

Type: _____

Depth (inches): _____

Hydric			
Soil Present?	Yes	✓	No

Meets F3 and F4

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hepner to Rhodes City/County: Jackson Co. Sampling Date: 7/18/2017
 Applicant/Owner: ALP State: OH Sampling Point: W006 (PEM)
 Investigator(s): KLV Section, Township, Range: Coal Twp.
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 01
 Subregion (LRR or MLRA): LRR Lat: 39.08408387 Long: -82.62043721 Datum: NAD 83
 Soil Map Unit Name: Dr-Orrville Silty loam, 0 to 3 ft. Slopes, frequently flooded NWI classification: N/A

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		

Remarks: Wetland data point for W006 - PEM-CATMOD2.
Data point taken in maintained transmission ROW and next to active railroad tracks.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|--|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input checked="" type="checkbox"/> True Aquatic Plants (B14) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Iron Deposits (B5) | |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |
| <input type="checkbox"/> Aquatic Fauna (B13) | |

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1'</u>	Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>		
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>		

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

Remarks: Wetland Hydrology Indicators are A1, A3, C1, C3, D2, and D5, B10.

Tree Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	none				
2.					
3.					
4.					
5.					
6.					
7.					
			0 = Total Cover		

Sapling/Shrub Stratum		(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.	Salix nigra		5	y	obl
2.	Cephalanthus occidentalis		5	y	obl
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
			10 = Total Cover		

Herb Stratum		(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1.	Sagittaria cuneata		10	N	obl
2.	Leersia oryzoides		30	y	obl
3.	Carex lurida		20	y	obl
4.	Phalaris arundinacea		15	y	facw
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
			75 = Total Cover		

Woody Vine Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	none				
2.					
3.					
4.					
5.					
6.					
			0 = Total Cover		

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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0¹

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

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic veg is dominant - passes the dominance test + rapid test.

(PEM)

[illegible]²Location: PL=Pore Lining, M=Matrix.

- Dark Surface (S7)
- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 136, 122)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147)**

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

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

Type: _____

Depth (inches): _____

Hydric		
Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Meets F3

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hopner to Rhodes City/County: Jackson Co. Sampling Date: 7/18/2017
 Applicant/Owner: AEP State: OH Sampling Point: W006 - UPL
 Investigator(s): KLV Section, Township, Range: Lick Twp.
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%) 37
 Subregion (LRR or MLRA): LRR Lat: 39.08400329 Long: -82.62038613 Datum: NAD83
 Soil Map Unit Name: Or-orrville silt loam, 0 to 3% slopes, frequently flooded NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: <u>Upland data point for W006</u> <u>Data point taken in maintained transmission ROW and between PEM wetland and active Railroad tracks.</u>					

HYDROLOGY

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

Remarks: Wetland Hydrology is not present.

Tree Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1	none				
2					
3					
4					
5					
6					
7					
			0	= Total Cover	

Sapling/Shrub Stratum		(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1	Rubus allegheniensis		20	Y	FACU
2	Rosa multiflora		15	Y	FACU
3	Juglans nigra		5	N	FACU
4					
5					
6					
7					
8					
9					
10					
			40	= Total Cover	

Herb Stratum		(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1	Verbesina alternifolia		30	Y	FAC
2	Phalaris arundinacea		15	Y	FACU
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
			45	= Total Cover	

Woody Vine Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1	none				
2					
3					
4					
5					
6					
			0	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>15</u>	x 1 = <u>15</u>
FACW species <u>30</u>	x 2 = <u>60</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>40</u>	x 4 = <u>160</u>
UPL species <u>85</u>	x 5 = <u>425</u>
Column Totals: <u>85</u> (A)	<u>280</u> (B)
Prevalence Index = B/A = <u>3.3</u>	

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Upland veg is dominant

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Rhodes City/County: Jackson Co. Sampling Date: 7/18/2017
 Applicant/Owner: AEP State: OH Sampling Point: W008 (PEM)
 Investigator(s): KLV Section, Township, Range: Lick Twp
 Landform (hillslope, terrace, etc.): DIP Local relief (concave, convex, none): concave Slope (%) 0/
 Subregion (LRR or MLRA): LRR Lat: 39.08102274 Long: -82.58411508 Datum: NAD83
 Soil Map Unit Name: Or-Orville Silt loam, 0 to 3/4 Slopes, frequently flooded NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐
 Hydric Soil Present? Yes ☒ No ☐
 Wetland Hydrology Present? Yes ☒ No ☐

Is the Sampled Area within a Wetland?

Yes ☒ No ☐

Remarks:

Wetland data point for W008 -PEM-CAT1.
 Data point taken in maintained transmission ROW and at bottom of pond dam.

HYDROLOGY

Wetland Hydrology Indicators:

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

☒ Surface Water (A1) ☐ True Aquatic Plants (B14)
☒ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1)
☒ Saturation (A3) ☒ Oxidized Rhizospheres on Living Roots (C3)
☐ Water Marks (B1) ☐ Presence of Reduced Iron (C4)
☐ Sediment Deposits (B2) ☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Drift Deposits (B3) ☐ Thin Muck Surface (C7)
☐ Algal Mat or Crust (B4) ☐ Other (Explain in Remarks)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 1"
 Water Table Present? Yes ☒ No ☐ Depth (inches): 0
 Saturation Present? Yes ☒ No ☐ Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present?

Yes ☒ No ☐

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

Remarks:

Wetland hydrology Indicators are A1, A2, A3, C3, D2 and D5.

Tree Stratum	(Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
		0	= Total Cover	

Sapling/Shrub Stratum	(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		0	= Total Cover	

Herb Stratum	(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex lurida		35	Y	Obl
2. Juncus effusus		20	Y	FACW
3. Typha x glauca		5	N	Obl
4. Eupatorium perfoliatum		5	N	FACW
5. Mimulus alatus		5	N	Obl
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		70	= Total Cover	

Woody Vine Stratum	(Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
		0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall

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

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

Hydrophytic Vegetation Present?

Yes ☒ No ☐

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

Hydrophytic veg. is dominant - passes the dominance test.

(PEM)

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

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

Type: _____

Depth (inches): _____

Soil Present?

Yes

No

Meets F3

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Rhodes City/County: Jackson Co. Sampling Date: 7/18/2017
 Applicant/Owner: AEP State: OH Sampling Point: W008 - UPL
 Investigator(s): KLV Section, Township, Range: Lick Twp.
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%) 0.1
 Subregion (LRR or MLRA): LRR Lat: 39.08095016 Long: -82.58382687 Datum: NAD83
 Soil Map Unit Name: Or-Orville Silt loam, 0 to 3.1' Slopes, frequently flooded NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒
 Hydric Soil Present? Yes ☐ No ☒
 Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area within a Wetland?

Yes ☐No ☒Remarks: Upland data point for W008Data point taken in maintained transmission ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

☐ Surface Water (A1) ☐ True Aquatic Plants (B14)
☐ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1)
☐ Saturation (A3) ☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Water Marks (B1) ☐ Presence of Reduced Iron (C4)
☐ Sediment Deposits (B2) ☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Drift Deposits (B3) ☐ Thin Muck Surface (C7)
☐ Algal Mat or Crust (B4) ☐ Other (Explain in Remarks)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present?

Yes ☐No ☒

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

Remarks:

Wetland hydrology is not present.

Tree Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1	none				
2					
3					
4					
5					
6					
7					
			0	= Total Cover	

Sapling/Shrub Stratum		(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1	Liriodendron tulipifera		5	Y	FACU
2	Rubus allegheniensis		5	Y	FACU
3					
4					
5					
6					
7					
8					
9					
10					
			10	= Total Cover	

Herb Stratum		(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1	Leucanthemum vulgare		5	N	Upl
2	Erigeron annuus		5	N	FACU
3	Trifolium pratense		10	N	FACU
4	Achillea millefolium		5	N	FACU
5	Polystichum acrostichoides		5	N	FACU
6					
7					
8					
9					
10					
11					
12					
			30	= Total Cover	

Woody Vine Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1	none				
2					
3					
4					
5					
6					
			0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of: Multiply by:

OBL species x 1 =

FACW species x 2 =

FAC species x 3 =

FACU species x 4 =

UPL species x 5 =

Column Totals: (A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present?

Yes No ☒

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

Upland veg is dominant.

Sampling Point: W008 -UPL

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

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

Type: _____

Depth (inches): _____

Soil Present?

Yes

No

Hydric Soils are not present

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hepner to Rhodes City/County: Jackson Co. Sampling Date: 7/19/2017
 Applicant/Owner: AEP State: OH Sampling Point: W009 (PEM)
 Investigator(s): KLV Section, Township, Range: Lick Twp.
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 01
 Subregion (LRR or MLRA): LRR Lat: 39.080005108 Long: -82.56468391 Datum: NAD83
 Soil Map Unit Name: ChD-Clymer loam, 15 to 25 % Slopes NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐
 Hydric Soil Present? Yes ☒ No ☐
 Wetland Hydrology Present? Yes ☒ No ☐

Is the Sampled Area within a Wetland?

Yes ☒ No ☐

Remarks:

Wetland data point for W009 -PEM-CATMOD2.
 Data point taken in maintained transmission ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

☒ Surface Water (A1) ☐ True Aquatic Plants (B14)
☒ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1)
☒ Saturation (A3) ☒ Oxidized Rhizospheres on Living Roots (C3)
☐ Water Marks (B1) ☐ Presence of Reduced Iron (C4)
☐ Sediment Deposits (B2) ☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Drift Deposits (B3) ☐ Thin Muck Surface (C7)
☐ Algal Mat or Crust (B4) ☐ Other (Explain in Remarks)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): 10+
 Water Table Present? Yes ☒ No ☐ Depth (inches): 0
 Saturation Present? Yes ☒ No ☐ Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Wetland hydrology Indicators are A3, C3, D2 and D5.

Tree Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	none				
2.					
3.					
4.					
5.					
6.					
7.					
			0	= Total Cover	

Sapling/Shrub Stratum		(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.	none				
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
			0	= Total Cover	

Herb Stratum		(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1.	Leersia oryzoides		35	Y	Obl
2.	Panicum clandestinum		5	N	FAC
3.	Mimulus alatus		5	N	Obl
4.	Carex lurida		25	Y	Obl
5.	Impatiens capensis		15	N	FAC
6.					
7.					
8.					
9.					
10.					
11.					
12.					
			85	= Total Cover	

Woody Vine Stratum		(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	none				
2.					
3.					
4.					
5.					
6.					
			0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0¹

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

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic veg is dominant - passes the dominance test.

Sampling Point: W009 (PEM)

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|---|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Dark Surface (S7) | <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) | <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> (MLRA 136, 147) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR N) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147) | |

Type: _____

Depth (inches): _____

Hydric			
Soil Present?	Yes	✓	No

Meets F3.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Rhodes City/County: Jackson Co. Sampling Date: 7/19/2017
 Applicant/Owner: AEP State: OH Sampling Point: W009 - UPL
 Investigator(s): KLV Section, Township, Range: Lick Twp.
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%) 5.1
 Subregion (LRR or MLRA): LRR Lat: 39.07995458 Long: -82.56470623 Datum: NAD 83
 Soil Map Unit Name: chD-Clymer loam, 15 to 25% Slopes NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Upland data point for W009</u> <u>Data point taken in maintained transmission ROW.</u>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required, check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

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

Remarks:

Wetland hydrology is not present.

Tree Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				

0 = Total Cover

Sapling/Shrub Stratum	(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera		5	✓	FACU
2. Fagus grandifolia		5	✓	FACU
3. Liriodendron tulipifera		10	✓	FACU
4.				
5.				
6.				
7.				
8.				
9.				
10.				

20 = Total Cover

Herb Stratum	(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

0 = Total Cover

Woody Vine Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Toxicodendron radicans		15	✓	FACU
2. Parthenocissus quinquefolia		15	✓	FACU
3.				
4.				
5.				
6.				

30 = Total Cover

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of: Multiply by:

OBL species x 1 =

FACW species x 2 =

FAC species x 3 =

FACU species x 4 =

UPL species x 5 =

Column Totals: (A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.**Sapling/Shrub** - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall**Herb** - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall**Woody Vines** - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation

Present? Yes No ✓

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

Upland veg is dominant.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hopper to Rhodes City/County: Jackson Co. Sampling Date: 7/19/2017
 Applicant/Owner: AAEP State: OH Sampling Point: W010 (PEM)
 Investigator(s): KLV Section, Township, Range: Coal Twp.
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 0.1
 Subregion (LRR or MLRA): LRR Lat: 39.08053068 Long: -82.55069281 Datum: NAD83
 Soil Map Unit Name: Wya3D2 Wyatt Silty Clay loam, 12 to 18% Slopes NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐
 Hydric Soil Present? Yes ☒ No ☐
 Wetland Hydrology Present? Yes ☒ No ☐

Is the Sampled Area within a Wetland?

Yes ☒ No ☐

Remarks:

Wetland data point for W010 - PEM-CATMOD2.
 Data point was taken in maintained transmission ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

☒ Surface Water (A1) ☐ True Aquatic Plants (B14)
☒ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1)
☒ Saturation (A3) ☒ Oxidized Rhizospheres on Living Roots (C3)
☐ Water Marks (B1) ☐ Presence of Reduced Iron (C4)
☐ Sediment Deposits (B2) ☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Drift Deposits (B3) ☐ Thin Muck Surface (C7)
☐ Algal Mat or Crust (B4) ☐ Other (Explain in Remarks)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): .5"
 Water Table Present? Yes ☒ No ☐ Depth (inches): 10+
 Saturation Present? Yes ☒ No ☐ Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present?

Yes ☒ No ☐

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

Remarks:

Wetland hydrology Indicators are A1, A2, A3, C3, D2, and D5.

Tree Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
		0	= Total Cover	

Sapling/Shrub Stratum	(Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		0	= Total Cover	

Herb Stratum	(Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Eupatorium perfoliatum		5	N	Obl
2. Juncus effusus		15	N	FACW
3. Leersia oryzoides		35	N	Obl
4. Carex lurida		25	N	Obl
5. Impatiens capensis		15	N	FACW
6. Scirpus cyperinus		5	N	FACW
7.				
8.				
9.				
10.				
11.				
12.				
		100	= Total Cover	

Woody Vine Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none				
2.				
3.				
4.				
5.				
6.				
		0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

Hydrophytic Vegetation Present?

Yes ☒ No ☐

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

Hydrophytic veg is dominant - passes the dominance test and rapid test.

Sampling Point: W010 (PEM)

[illegible]²Location: PL=Pore Lining, M=Matrix.

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147,148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

Hydric		
Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Meets F3.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hoppper to Rhodes City/County: Jackson Co. Sampling Date: 7/19/2017
 Applicant/Owner: AFP State: OH Sampling Point: W010 -UPL
 Investigator(s): KLV Section, Township, Range: Coal Twp.
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): CONVEX Slope (%) 5%
 Subregion (LRR or MLRA): LRR Lat: 39.08041188 Long: -82.55059478 Datum: NAD83
 Soil Map Unit Name: Wya3D2 - Wyatt Silty clay loam, 12 to 18% Slopes NWI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒
 Hydric Soil Present? Yes ☐ No ☒
 Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area within a Wetland? Yes ☐ No ☒

Remarks:

Upland data point for W010.
 Data point was taken in maintained transmission ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

☐ Surface Water (A1) ☐ True Aquatic Plants (B14)
☐ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1)
☐ Saturation (A3) ☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Water Marks (B1) ☐ Presence of Reduced Iron (C4)
☐ Sediment Deposits (B2) ☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Drift Deposits (B3) ☐ Thin Muck Surface (C7)
☐ Algal Mat or Crust (B4) ☐ Other (Explain in Remarks)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Wetland hydrology is not present.

Tree Stratum	(Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. none					Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
2.					Total Number of Dominant Species Across All Strata: 2 (B)
3.					Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)
4.					
5.					
6.					
7.		0			
					Prevalence Index worksheet:
					Total % Cover of: _____ Multiply by: _____
					OBL species _____ x 1 = _____
					FACW species _____ x 2 = _____
					FAC species _____ x 3 = _____
					FACU species _____ x 4 = _____
					UPL species _____ x 5 = _____
					Column Totals: _____ (A) _____ (B)
					Prevalence Index = B/A = _____
					Hydrophytic Vegetation Indicators:
					1 - Rapid Test for Hydrophytic Vegetation
					2 - Dominance Test is >50%
					3 - Prevalence Index is ≤3.0 ¹
					4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
					Problematic Hydrophytic Vegetation ¹ (Explain)
					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
					Definitions of Vegetation Strata:
					Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter.
					Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
					Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
					Woody Vines - All woody vines greater than 3.28 ft in height.
					Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Vegetation Remarks: (Include photo numbers here or on a separate sheet).					
Upland veg is dominant.					

-VPL

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Dark Surface (S7) | <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) | <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> (MLRA 136, 147) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR N) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147,148) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147) | |

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

Type: _____

Depth (inches): _____

Hydric			
Soil Present?	Yes	No	✓

Hydric Soils not present

APPENDIX C

Primary Headwater Habitat Evaluation (HHEI) Data Forms



Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION AEP-Heppner to Knobs
SITE NUMBER 5001 RIVER BASIN Scioto River DRAINAGE AREA (mi²) 0.28 sq mi
LENGTH OF STREAM REACH (ft) 200 LAT. 39.084470 LONG. -82.122057 RIVER CODE _____ RIVER MILE _____
DATE 7/17/2017 SCORER KLV COMMENTS SOH-KLV-001 (PER)

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pt]	<u>10</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS [3 pts]	<u>10</u>
<input type="checkbox"/> BEDROCK [16 pt]		<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]	<u>20</u>	<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 0

(A) 12

(B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

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

Pool Depth
Max = 30

15

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters):

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):
- | | |
|---|---|
| <input type="checkbox"/> > 4.0 meters (> 13') [30 pts] | <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] |
| <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] | <input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] |
| <input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] | |

Bankfull
Width
Max=30

5

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters)

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH

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

FLOODPLAIN QUALITY

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

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input 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 _____

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)

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: Horse Creek Distance from Evaluated Stream 0 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jackson Co. Township / City: Coala Lick Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: .25"
Photograph Information: _____
Elevated Turbidity? (Y/N): N Canopy (% open): 80%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

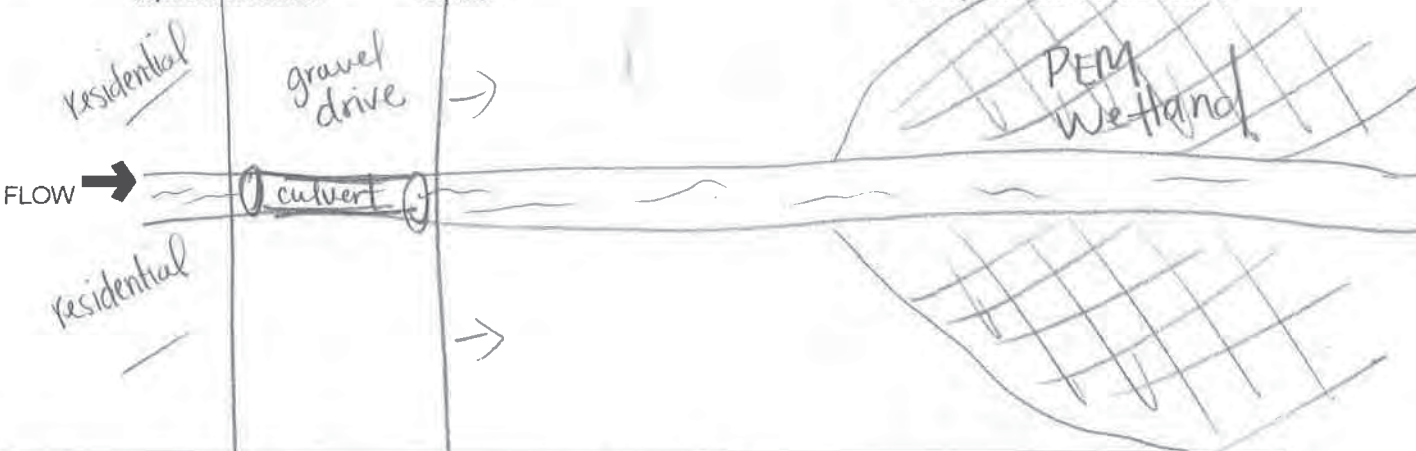
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION AEP - Heppner to Rhodes

S003

SITE NUMBER

RIVER BASIN

Scioto River

DRAINAGE AREA (mi²)

0.065 mi²

LENGTH OF STREAM REACH (ft) 200

LAT 39.083315

LONG 82.604563

RIVER CODE

RIVER MILE

DATE 7/18/2017

SCORER KLV

COMMENTS SOH-KLV-003 (EPH)

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

STREAM CHANNEL

☒ NONE / NATURAL CHANNEL

☐ RECOVERED

☐ RECOVERING

☐ RECENT OR NO RECOVERY

MODIFICATIONS:

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pt]	<u>30</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS [3 pts]	<u>20</u>
<input type="checkbox"/> BEDROCK [16 pt]		<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) [8 pts]	<u>30</u>	<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

0

(A) 12

(B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

2cm

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

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

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

3'

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

Pool Depth
Max = 30

5

Bankfull
Width
Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<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"/>	Narrow <5m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<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 type="checkbox"/> Stream Flowing	<input checked="" 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

- 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 checked="" 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)

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: Horse Creek Distance from Evaluated Stream 0.80 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jackson Co. Township / City: Coal Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: .25"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

53

SITE NAME/LOCATION AEP-Heppner to Rhodes
SITE NUMBER 5004 RIVER BASIN Scioto River DRAINAGE AREA (mi²) 0.07 sq. mi.
LENGTH OF STREAM REACH (ft) 200 LAT 39.083310 LONG 82.600449 RIVER CODE _____ RIVER MILE _____
DATE 7/18/2017 SCORER KLV COMMENTS SOH-KLV-004 (INT)

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pt]	25
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5
<input type="checkbox"/> BEDROCK [16 pt]	10	<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	25	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 pts]	

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

20

(A) 12

(B) 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

18

A + B

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

<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

MAXIMUM POOL DEPTH (centimeters):

Pool Depth
Max = 30

15

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 checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

Bankfull
Width
Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	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"/>
(Per Bank)		(Most Predominant per Bank)			
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/> Moderate 5-10m		<input type="checkbox"/> Immature Forest, Shrub or Old Field		<input type="checkbox"/> Urban or Industrial	
<input type="checkbox"/> Narrow <5m		<input checked="" 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

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 checked="" 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)

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: Sugar Run Distance from Evaluated Stream 0.31 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jackson Co. Township / City: Coal Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: 25"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

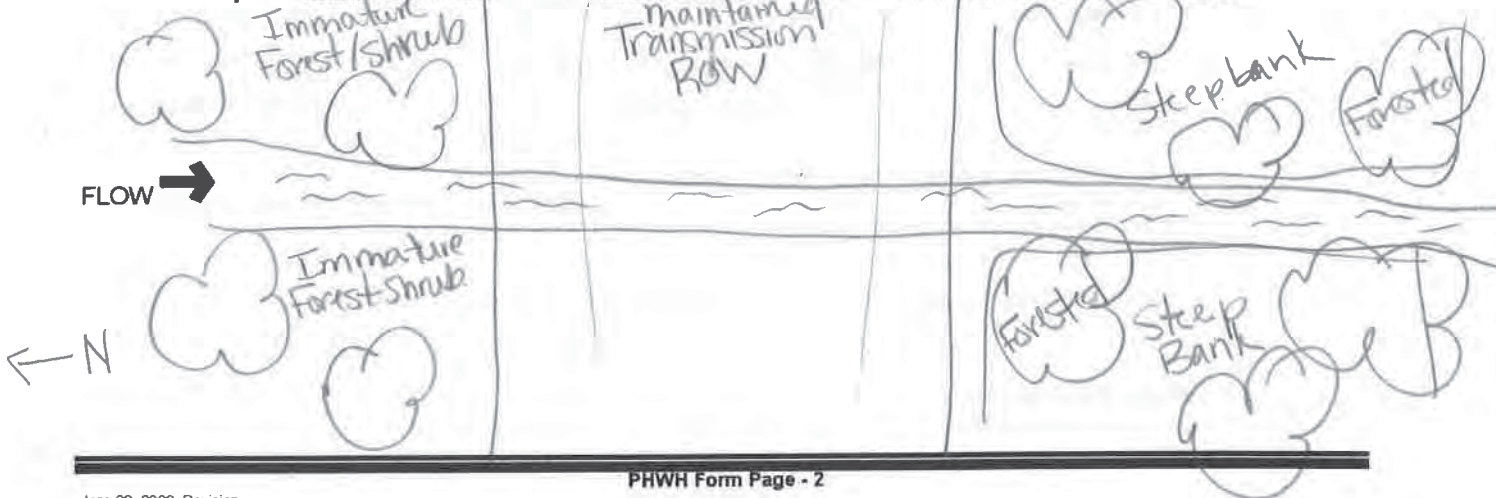
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

36

SITE NAME/LOCATION APP - Heppner to Rhodes
SITE NUMBER 5005 RIVER BASIN Scioto River DRAINAGE AREA (mi²) 0.07 sq. mi.
LENGTH OF STREAM REACH (ft) 136 LAT. 39.083354 LONG. 82.600389 RIVER CODE _____ RIVER MILE _____
DATE 7/18/2017 SCORER KLV COMMENTS SAH-KLV-005 (INT)

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pt]	<u>50</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>15</u>
<input type="checkbox"/> BEDROCK [16 pt]		<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]	<u>25</u>	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<u>10</u>	<input type="checkbox"/> ARTIFICIAL [3 pts]	

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

0

(A) 12

(B) 4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

16

A + B

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

<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

MAXIMUM POOL DEPTH (centimeters):

4cm

Pool Depth
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 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

AVERAGE BANKFULL WIDTH (meters)

4

Bankfull
Width
Max=30

15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L	R	(Per Bank)
<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

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

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input 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

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 checked="" 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)

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: Sugar Run Distance from Evaluated Stream 0.31 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jackson Co. Township / City: Coal Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: .25"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 15%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

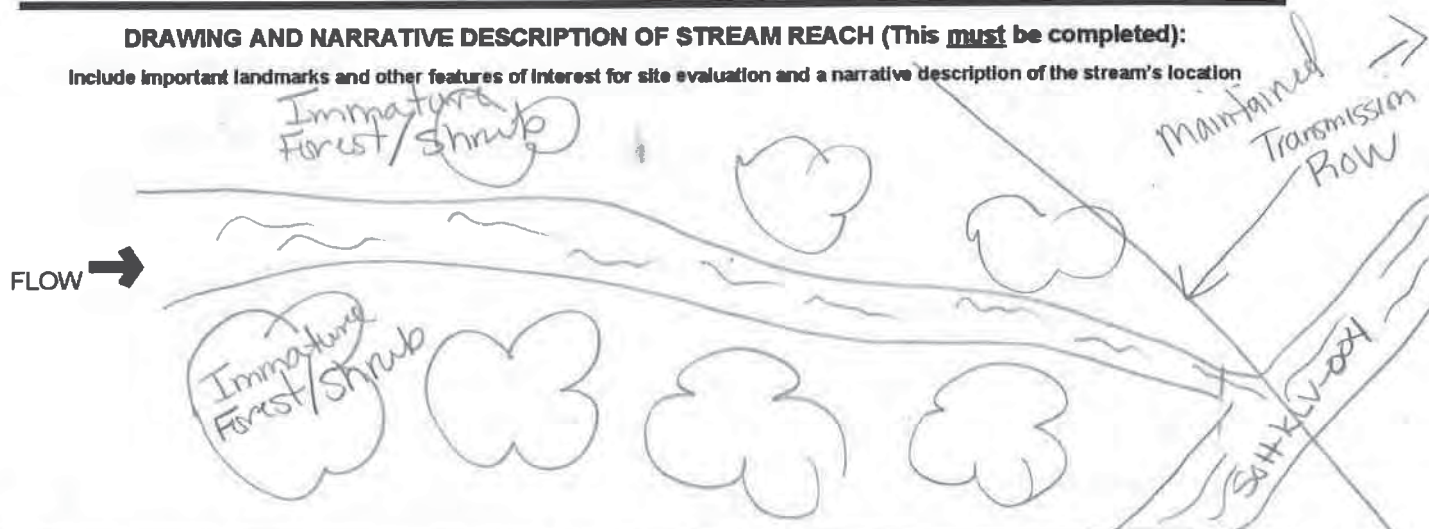
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

32

SITE NAME/LOCATION AFP-Heppner to Rhodes
SOOL SITE NUMBER 53 RIVER BASIN Scioto River DRAINAGE AREA (mi²) 0.0159 mi²
LENGTH OF STREAM REACH (ft) 53 LAT 39.082945 LONG 82.58937 RIVER CODE SOH-KLV-006 RIVER MILE (EPH)
DATE 7/18/2007 SCORER KLV COMMENTS SOH-KLV-006 (EPH)

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR GLASS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	35
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input type="checkbox"/> BEDROCK (16 pts)	10	<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (10 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (10 pts)	25	<input type="checkbox"/> MUCK (10 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	20	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10 (A) 12 (B) 5
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

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 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

AVERAGE BANKFULL WIDTH (meters):

HHEI Metric Points

Substrate Max = 40

17

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream.☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)			
<input checked="" type="checkbox"/> Wide >10m		<input checked="" type="checkbox"/> Mature Forest, Wetland		<input type="checkbox"/> Conservation Tillage	
<input checked="" type="checkbox"/> Moderate 5-10m		<input checked="" type="checkbox"/> Immature Forest, Shrub or Old Field		<input 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 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 type="checkbox"/> Stream Flowing	<input checked="" 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

- 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 checked="" 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)

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: Sugar Run Distance from Evaluated Stream 0.31 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Jackson Co. Township / City: Coal Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: .25"
Photograph Information: _____
Elevated Turbidity? (Y/N): N Canopy (% open): 50%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

Biotic Evaluation

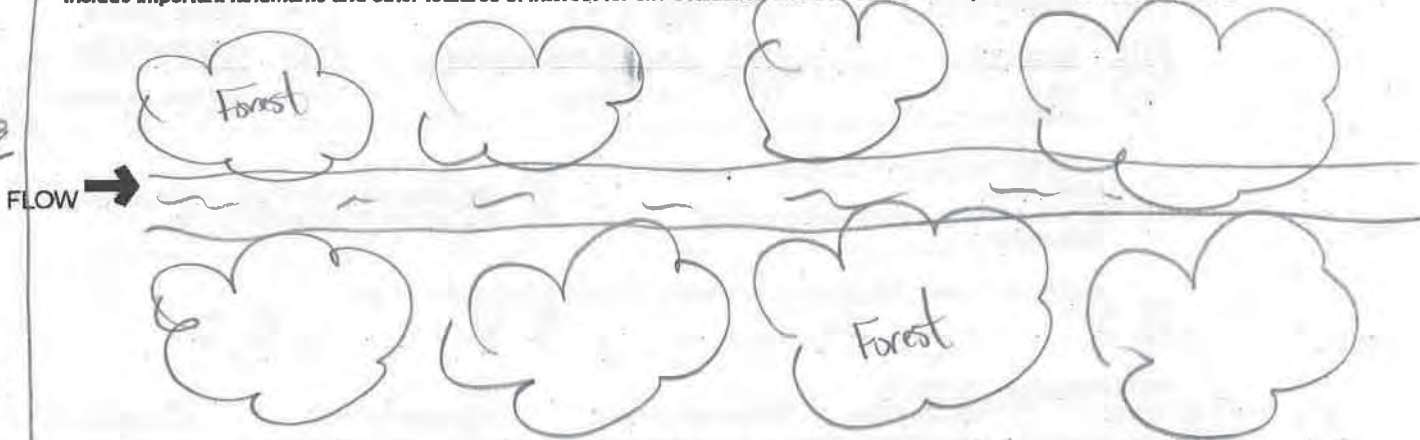
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

62

SITE NAME/LOCATION AEP - Heppner to Rhodes
5007 SITE NUMBER RIVER BASIN Scioto River DRAINAGE AREA (mi²) 2.11 sq. mi
LENGTH OF STREAM REACH (ft) 200 LAT 39.08170 LONG 82.91587 RIVER CODE RIVER MILE
DATE 7/18/2017 SCORER KLV COMMENTS SOH-KLV-007 (PER)

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	<u>30</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>10</u>
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (63-256 mm) [12 pts]	<u>10</u>	<input type="checkbox"/> CLAY or HARDPAN [10 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	<u>20</u>	<input type="checkbox"/> MUCK [3 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<u>10</u>	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock12(A) 12(B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
PointsSubstrate
Max = 4017

A + B

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

<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):

6"Pool Depth
Max = 3025

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

AVERAGE BANKFULL WIDTH (meters)

5'Bankfull
Width
Max=3020

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH

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

COMMENTS

FLOODPLAIN QUALITY

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

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

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

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

COMMENTS

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 checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input checked="" 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)
---	--	---	---	--

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: Sugar Run Distance from Evaluated Stream 0 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jackson Co. Township / City: Coal Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: .25"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

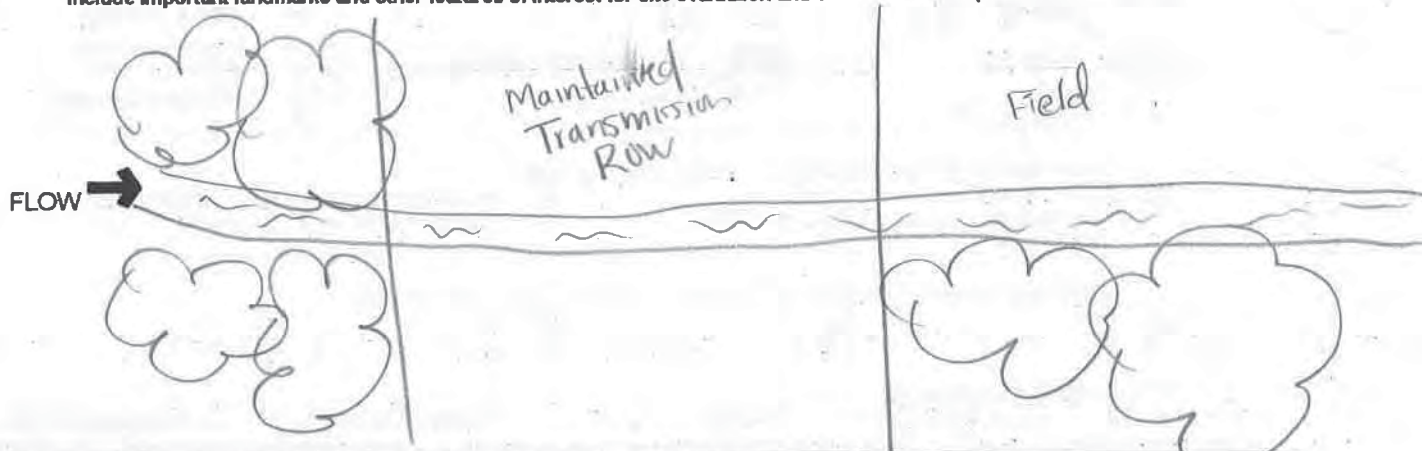
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

20

SITE NAME/LOCATION AFP-Hepper to Knobs SITE NUMBER 3009 RIVER BASIN South River DRAINAGE AREA (mi²) 0.059
LENGTH OF STREAM REACH (ft) 316 LAT. 39.081608 LONG. 82.583622 RIVER CODE _____ RIVER MILE _____
DATE 7/19/2017 SCORER KLV COMMENTS SOH-KLV-009 (EPH)

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	80
<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 (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	15	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

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

0

(A)

12

(B)

3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
PointsSubstrate
Max = 40

15

A + B

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

<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 type="checkbox"/> > 10 - 22.5 cm (25 pts)	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

Pool Depth
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

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

Bankfull
Width
Max=30

5

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

2'

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 (Intermittent)	<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 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)

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: Sugar Run Distance from Evaluated Stream 0.06 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Jackson Co Township / City: Coal Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: 25"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

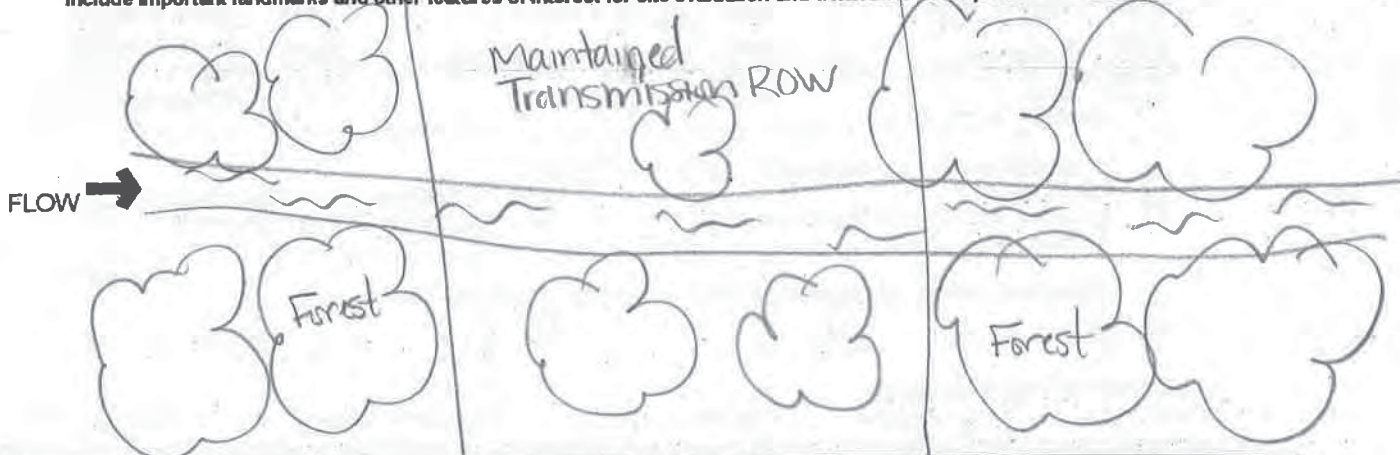
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

52

SITE NAME/LOCATION AEP- Hecphner to Rhodes
SITE NUMBER 5010 RIVER BASIN S. 10th River DRAINAGE AREA (mi²) 0.059
LENGTH OF STREAM REACH (ft) 200 LAT. 39.08183 LONG. -82.96918 RIVER CODE _____ RIVER MILE _____
DATE 7/18/2017 SCORER KLV COMMENTS SOH-KLV-010 (PER)

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	40
<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 (63-256 mm) (12 pts)	10	<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	30	<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	15	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock 10

(A) 12

(B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

17

A + B

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

<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

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth
Max = 30

15

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

AVERAGE BANKFULL WIDTH (meters)

5'

Bankfull
Width
Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field		<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Residential, Park, New Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture		<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m				Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>			Mining or Construction	
None					

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

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 checked="" 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)

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: Sugar Run Distance from Evaluated Stream 0 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Jackson Co. Township / City: Coal & Lick Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: .25"
Photograph Information: _____
Elevated Turbidity? (Y/N): N Canopy (% open): 35%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

Biotic Evaluation

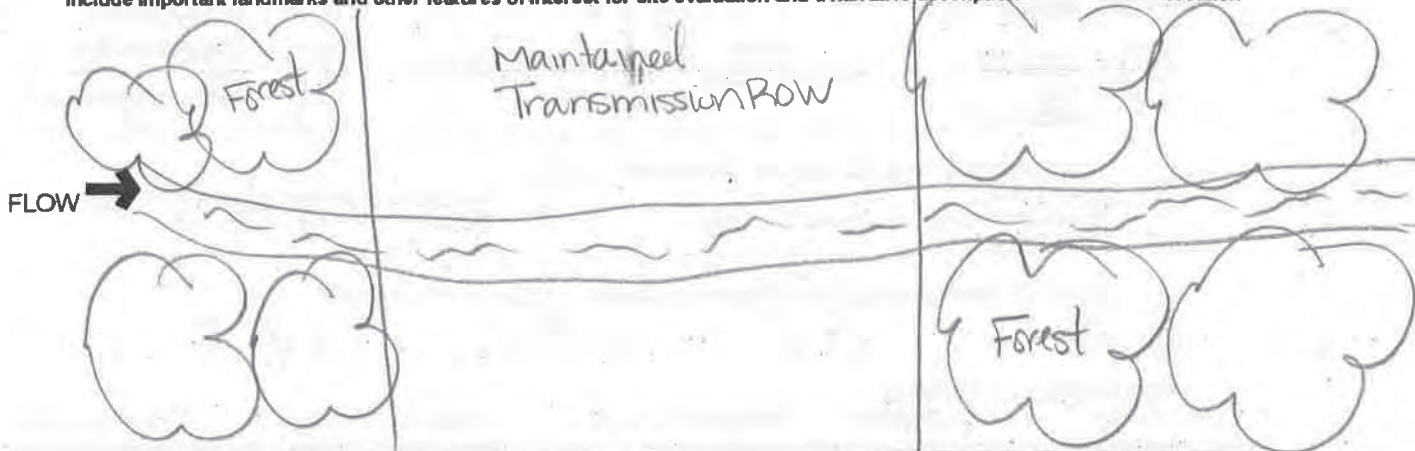
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

34

SITE NAME/LOCATION: AFP - Hopper to Rhodes
Soil SITE NUMBER: 200 RIVER BASIN: Scioto River DRAINAGE AREA (mi²): 0.0559
LENGTH OF STREAM REACH (ft): 200 LAT: 39.081039 LONG: -82.584161 RIVER CODE: SOH-KLV-011 (INT)
DATE: 7/19/2017 SCORER: KLV COMMENTS: SOH-KLV-011 (INT)

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	70
<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 pts)	
<input checked="" type="checkbox"/> GRAVEL (8-64 mm) (8 pts)	30	<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

0

(A) 12

(B) 2

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40

14

A + B

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

<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)

Pool Depth Max = 30

15

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

8cm

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

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

Bankfull Width Max = 30

5

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2'

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH

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

FLOODPLAIN QUALITY

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

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input 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

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 checked="" 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)

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: Sugar Run Distance from Evaluated Stream 0 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jackson Co. Township / City: Cool Lick Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: .25"
Photograph Information: _____
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

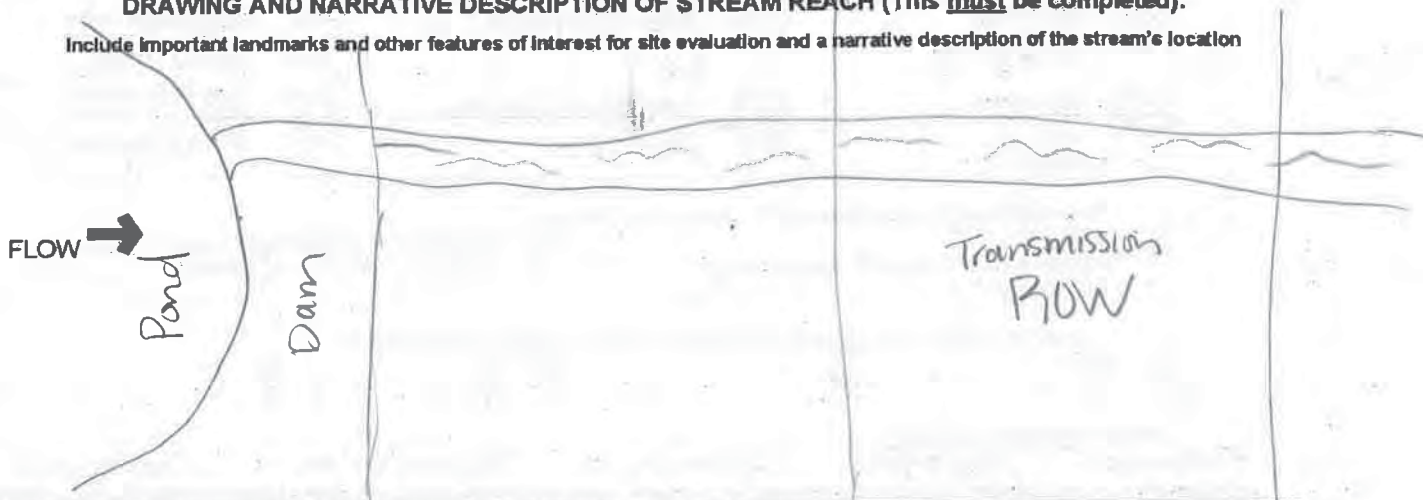
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

39

SITE NAME/LOCATION ATP-Heppner to Rhodes
S012 SITE NUMBER RIVER BASIN Suoto River DRAINAGE AREA (mi²) 2.05 sq. mi
LENGTH OF STREAM REACH (ft) 188 LAT. 39.080882 LONG. 82.581155 RIVER CODE RIVER MILE
DATE 7/19/2017 SCORER KLV COMMENTS SOH-KLV-013 (INT)

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pt]	<u>20</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>10</u>
<input type="checkbox"/> BEDROCK [16 pt]		<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]	<u>30</u>	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	<u>40</u>	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock 0

(A) 15

(B) 4

HHEI
Metric
Points

Substrate
Max = 40

19

A + B

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input 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]

Pool Depth
Max = 30

15

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

60cm

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

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

Bankfull
Width
Max=30

5

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

2'

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (Most Predominant per Bank)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Immature Forest, Shrub or Old Field	<input type="checkbox"/> Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<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

- 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)

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: Sugar Run Distance from Evaluated Stream 0 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jackson Co. Township / City: Coal & Lick Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: 1.25"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

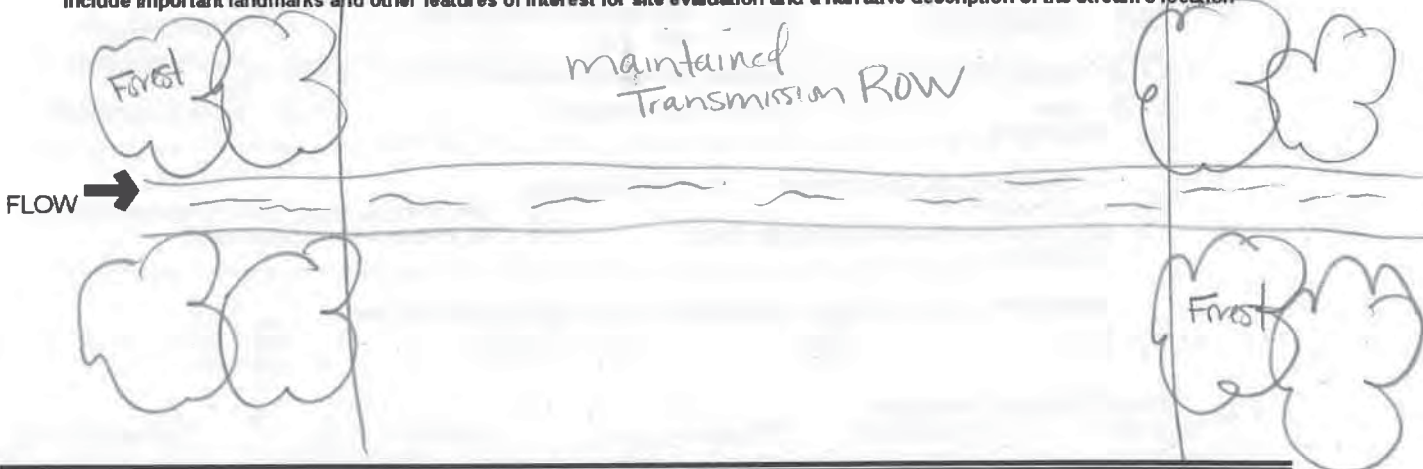
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

16

SITE NAME/LOCATION ALP - Appleton Ponds SITE NUMBER 504 RIVER BASIN Santo River DRAINAGE AREA (mi²) 204 sq. mi
LENGTH OF STREAM REACH (ft) 200 LAT 39.080389 LONG 82.568119 RIVER CODE _____ RIVER MILE _____
DATE 7/19/17 SCORER KLV COMMENTS 504-KLV-014 (PH)

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

STREAM CHANNEL



NONE / NATURAL CHANNEL



RECOVERED



RECOVERING



RECENT OR NO RECOVERY

MODIFICATIONS:

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate **TYPE** boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>20</u>
<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 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	<u>80</u>	<input type="checkbox"/> ARTIFICIAL [0 pts]	

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

0

(A)

9

(B)

2

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate
Max = 40

11

A + B

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

<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 type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

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

Bankfull
Width
Max=30

5

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

21

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)			
<input type="checkbox"/> Wide >10m		<input type="checkbox"/> Mature Forest, Wetland		<input type="checkbox"/> Conservation Tillage	
<input checked="" type="checkbox"/> Moderate 5-10m		<input type="checkbox"/> Immature Forest, Shrub or Old Field		<input 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 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 type="checkbox"/> Stream Flowing	<input checked="" 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

- 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 checked="" 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)

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: Sugar Run Distance from Evaluated Stream 0.38mils
☐ 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: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Jackson Co. Township / City: Coal & Lick Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: 25"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

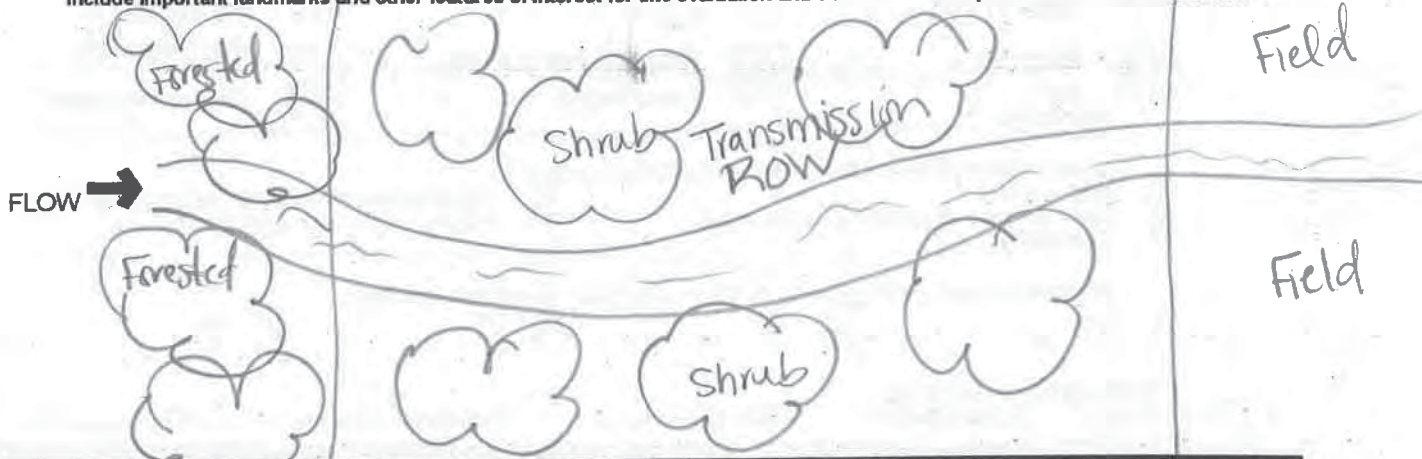
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

22

SITE NAME/LOCATION AEP - Heppner to Rhodes SITE NUMBER 5015 RIVER BASIN Scioto River DRAINAGE AREA (mi²) 0.079
LENGTH OF STREAM REACH (ft) 200 LAT 39.080041 LONG -82.562169 RIVER CODE _____ RIVER MILE _____
DATE 7/19/2017 SCORER KLV COMMENTS SOH-KLV-015 (EPH)

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SALT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>20</u>
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (10 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>10</u>	<input type="checkbox"/> MUCK (10 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	<u>70</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 9 (B) 3
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
- | | |
|--|---|
| <input type="checkbox"/> > 30 centimeters (20 pts) | <input 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 (10 pts) |

COMMENTS pooling / No flow MAXIMUM POOL DEPTH (centimeters): 2cm

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 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 _____ AVERAGE BANKFULL WIDTH (meters) 3'

HHEI
Metric
Points

Substrate
Max = 40

12

A + B

Pool Depth
Max = 30

5

Bankfull
Width
Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)			
<input checked="" type="checkbox"/> Wide >10m		<input type="checkbox"/> Mature Forest, Wetland		<input type="checkbox"/> Conservation Tillage	
<input checked="" type="checkbox"/> Moderate 5-10m		<input type="checkbox"/> Immature Forest, Shrub or Old Field		<input 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 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 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 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)

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: Dickason Run Distance from Evaluated Stream 0.34 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Jackson Co. Township / City: Coal & Lick Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/07 Quantity: 25"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

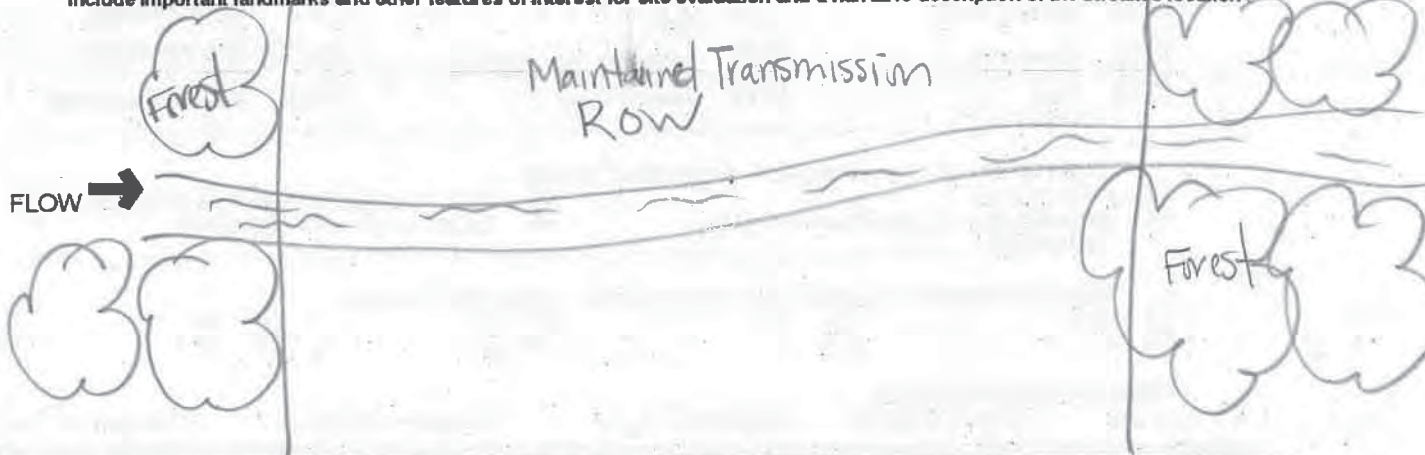
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Primary Headwater Habitat Evaluation Form

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

24

SITE NAME/LOCATION AEP - Heppner to Rhodes
 SOIL SITE NUMBER RIVER BASIN Scioto River DRAINAGE AREA (mi²) 0.17 sq mi
 LENGTH OF STREAM REACH (ft) 200 LAT 39.081751 LONG -82.949500 RIVER CODE RIVER MILE
 DATE 7/19/17 SCORER KLV COMMENTS SOH-KLV-D10 (EPH)

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	10
<input type="checkbox"/> BOULDER (>250 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-250 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (0 pt)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	20	<input type="checkbox"/> MUCK (0 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	60	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of
 Bldr Slabs, Boulder, Cobble, Bedrock 0

(A) 15

(B) 4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

19

A + B

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

<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 type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

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

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

Bankfull
Width
Max=30

5

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY *NOTE: River Left (L) and Right (R) as looking downstream*

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		<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"/>
Narrow <5m		<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"/>
None		<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 checked="" 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 type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" 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)

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: Meadow Run Distance from Evaluated Stream 0.25 miles
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wellston, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Jackson Co. Township / City: Coal Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: 25"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

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

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

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

Additional comments/description of pollution impacts: _____

BOTIC EVALUATION

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

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

Comments Regarding Biology: _____

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

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

FLOW →

Shrub

Forest

Shrub

Transmission Bow

APPENDIX D

Ohio Rapid Assessment Method for Wetlands (ORAM) Data Forms

Site: AEP-Hopper to Rhodes	Rater(s): KLV	Date: 7/13/2017
-----------------------------------	----------------------	------------------------

0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

W001 - PEM-CATMOD2

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)

4	4
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)

18	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 type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input checked="" type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other |

11.5	33.5
max 20 pts	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

- ☐ None or none apparent (9)
- ☒ Recovered (6) 4.5
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input checked="" type="checkbox"/> mowing | <input checked="" 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 |

33.5

subtotal this page

Site: AEP-Hopper to Rhodes Rater(s): KLV Date: 7/13/2017

33.5

subtotal first page

W001 - PEM - CATMOD2

0 33.5

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

2 35.5

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

35.5

CATMOD2

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AEP-Heppner to Rhodes	Rater(s): KLV	Date: 7/18/2017
------------------------------------	----------------------	------------------------

2	2
max 6 pts	subtotal

Metric 1. Wetland Area (size).

W002 - PEM-CATMOD2

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)

5	7
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)

18	25
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)

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)

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

- | | |
|--|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input | <ul style="list-style-type: none"> <input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input checked="" type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other |
|--|---|

11.5	36.5
max 20 pts	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

- | | |
|---|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment |
|---|---|

36.5
subtotal this page

Site: AEP-Heppner to Rhodes	Rater(s): KLV	Date: 7/18/2017
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36.5

subtotal first page

W002 - PEM-CATMOD2

0	36.5
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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	40.5
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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) 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

40.5

Cat. MOD 2

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AEP Heppner to RhodesRater(s): KLVDate: 7/17/2017

0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

W003 - PEM - CAT2

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)

4	4
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	21
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

8	29
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

29
subtotal this page

Site: AFP - Hepper to Rhodes Rater(s): KLV Date: 7/17/2017

29

subtotal first page

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0 29

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 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) 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

30

CATZ

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AEP-Happner to Rhodes	Rater(s): KLV	Date: 7/18/2017
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2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

W004 · PUB-CAT2

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)

5	7
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)

25	32
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

- | | |
|--|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input | <ul style="list-style-type: none"> <input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input checked="" type="checkbox"/> dredging <input checked="" type="checkbox"/> other pond |
|--|---|

13	45
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

- | | |
|---|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment |
|---|---|

45
subtotal this page

Site: AEP - Heppner to Rhodes	Rater(s): KLV	Date: 7/18/17
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45

subtotal first page

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0	45
max 10 pts	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

5	50
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

50

CAT2

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AEP Hopper to Rhodes	Rater(s): KLV	Date: 7/18/2017
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0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

W005 -PEM-CATZ

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)

5	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)

18	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 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

8.5	31.5
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

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

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

31.5

subtotal this page

Site: AEP- Hopper to Rhodes	Rater(s): KLV	Date: 7/18/2017
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31.5
subtotal first page

W005 - PEM - CATZ

0
31.5

max 10 pts.
subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

3
34.5

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

34.5
 CATZ

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AEP-Hopner to Rhodes	Rater(s): KLV	Date: 7/18/2017
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2	2
max 6 pts	subtotal

Metric 1. Wetland Area (size).

W006 - PEM-CATMOD2

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)

5	7
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)

20	27
max 30 pts	subtotal

Metric 3. Hydrology.

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

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

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

10.5	37.5
max 20 pts	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

- ☐ None or none apparent (9)
- ☒ Recovered (6) 4.5
- ☒ 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

37.5
subtotal this page

Site: AEP-Hopener to Rhodes	Rater(s): KLV	Date: 7/18/2017
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37.5

subtotal first page

W006 - PEM-CATMOD2

0	37.5
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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)

3	40.5
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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) 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

40.5

CATMOD2

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AEP - Hopper to Rhodes

Rater(s): KLV

Date: 7/18/2017

2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

W007 - PUB - CAT2

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)

8	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)

15	25
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 pond

6	31
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

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

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

31
subtotal this page

Site: AEP - Hoppner to Rhodes	Rater(s): KLV	Date: 7/18/2017
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31

subtotal first page

W007 - PUB - CAT2

0

31

max 10 pts.
subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

3

34

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

34

CAT2

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AEP - Hopper to Rhodes	Rater(s): KLV	Date: 7/19/2017
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1	1
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

W008 -PEM-CAT1

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	4
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)

11	15
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 pond dam

6	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

Site: <u>AFP-Hopper to Rhodes</u>	Rater(s): <u>KLV</u>	Date: <u>7/19/2017</u>
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21

subtotal first page

W008-PEM-CAT1

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)

0

21

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

21

CAT1

End of Quantitative Rating. Complete Categorization Worksheets.

Site: <u>AEP - Hopper to Rhodes</u>	Rater(s): <u>KLV</u>	Date: <u>7/19/2017</u>
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0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size). W009 - PEM - CATMOD2

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	9
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)

14	25
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 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 |

9.5	34.5
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

- ☐ None or none apparent (9)
- ☒ Recovered (6) 4.5
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input checked="" type="checkbox"/> mowing | <input checked="" 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 |

34.5

subtotal this page

Site: AEP- Heppner to Rhodes	Rater(s): KLV	Date: 7/19/2017
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34.5

subtotal first page

W009 - PEM - CATMOD2

0	34.5
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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)

3	37.5
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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

37.5

CATMOD2

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AEP - Hopper to Rhodes	Rater(s): KLV	Date: 7/19/2017
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2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

W010 - PEM-CATMOD2

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)

5	7
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)

21	28
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

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

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

10	38
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

38
subtotal this page

Site: AEP - Hopper to Rhodes	Rater(s): KLV	Date: 7/19/2017
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38

subtotal first page

W010 - PEM - CAT MOD2

0

38

max 10 pts.
subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

3

41

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

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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

4

End of Quantitative Rating. Complete Categorization Worksheets.

APPENDIX E

ODNR and USFWS Correspondence



Canton Office
3720 Dressler Road Northwest
Canton, Ohio 44718

T 330.433.2680
F 330.433.2694

May 12, 2017
Project C170352.06

Environmental Review Staff
Ohio Department of Natural Resources
Division of Wildlife - Ohio Natural Heritage Program
2045 Morse Road, Building G-3
Columbus, Ohio 43229-6693

**American Electric Power
Rhodes – Heppner 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened
and Endangered Species and Critical Habitat
Jackson County, Ohio**

Dear Staff:

GAI Consultants, Inc. (GAI), on behalf of American Electric Power (AEP), is requesting information regarding state- and federally-listed threatened and endangered species in the vicinity of the Rhodes – Heppner 138kV Line Rebuild Project (Project) in Jackson County, Ohio. As part of this request, please provide information specific to any threatened and endangered bats. GAI is also requesting the locations of any known golden or bald eagle nests in the area.

The proposed Project involves the rebuild of approximately 4.6 miles of the Rhodes – Heppner 138kV transmission line.

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists of maintained right-of-way bordered by mixed deciduous forests, agricultural lands, and residential properties. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

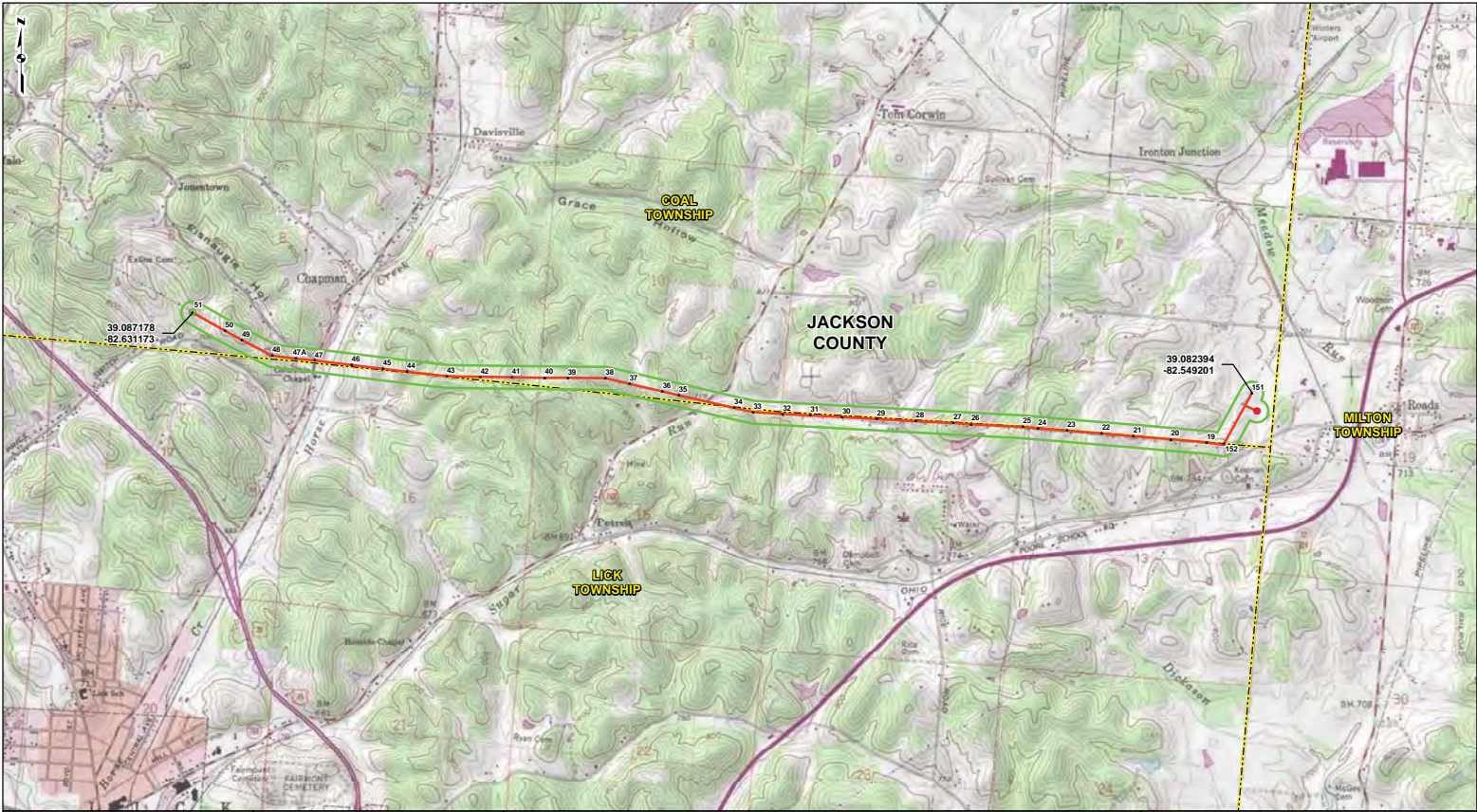
A handwritten signature in blue ink, appearing to read 'Allison R. Wheaton'.

Allison R. Wheaton, WPIT
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)
Project Shapefiles

ATTACHMENT 1
PROJECT LOCATION MAP



REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 05/2017.

LEGEND

• EXISTING STRUCTURE	— EXISTING TRANSMISSION LINE
● (PROPOSED) HEPPNER SWITCH STATION	▭ STUDY AREA
● (PROPOSED) RHODES SWITCH STATION	▭ COUNTY BOUNDARY
	▭ TOWNSHIP BOUNDARY

0 1,000 2,000 4,000 Feet

PROJECT LOCATION MAP

RHODES - HEPPNER
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

DRAWN BY: AKW
CHECKED: EFJ

DATE: 5/12/2017
APPROVED:

From: susan_zimmermann@fws.gov on behalf of [Ohio, FW3](#)
To: [Allison Wheaton](#)
Cc: kate.parsons@dnr.state.oh.us; nathan.reardon@dnr.state.oh.us
Subject: Four (4) AEP Projects: Heppner / Rhoads / Ginger / Rhoads-Heppener
Date: Friday, June 02, 2017 1:39:00 PM
Attachments: [Capture of Dan.PNG](#)



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



03E15000-2017-TA-1329 GAI AEP Ginger Switch Replacement Project, Ross Co.
03E15000-2017-TA-1328 GAI AEP Heppner Substation Project, Jackson Co.
03E15000-2017-TA-1327 GAI AEP Rhodes Substation Project, Jackson Co.
03E15000-2017-TA-1326 GAI AEP Rhoads-Heppner 138kV Line Rebuild, Jackson

Dear Ms. Wheaton,

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 summer 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 "Dan Everson". The signature is fluid and cursive, with the first name "Dan" being more prominent.

Dan Everson

Field Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW



Canton Office
3720 Dressler Road Northwest
Canton, Ohio 44718

T 330.433.2680
F 330.433.2694

May 12, 2017
Project C170352.06

Mr. Dan Everson
United States Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230

**American Electric Power
Rhodes – Heppner 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened
and Endangered Species and Critical Habitat
Jackson County, Ohio**

Dear Mr. Everson:

GAI Consultants, Inc. (GAI), on behalf of American Electric Power (AEP), is requesting information regarding state- and federally-listed threatened and endangered species in the vicinity of the Rhodes – Heppner 138kV Line Rebuild Project (Project) in Jackson County, Ohio. As part of this request, please provide information specific to any threatened and endangered bats. GAI is also requesting the locations of any known golden or bald eagle nests in the area.

The proposed Project involves the rebuild of approximately 4.6 miles of the Rhodes – Heppner 138kV transmission line.

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists of maintained right-of-way bordered by mixed deciduous forests, agricultural lands, and residential properties. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

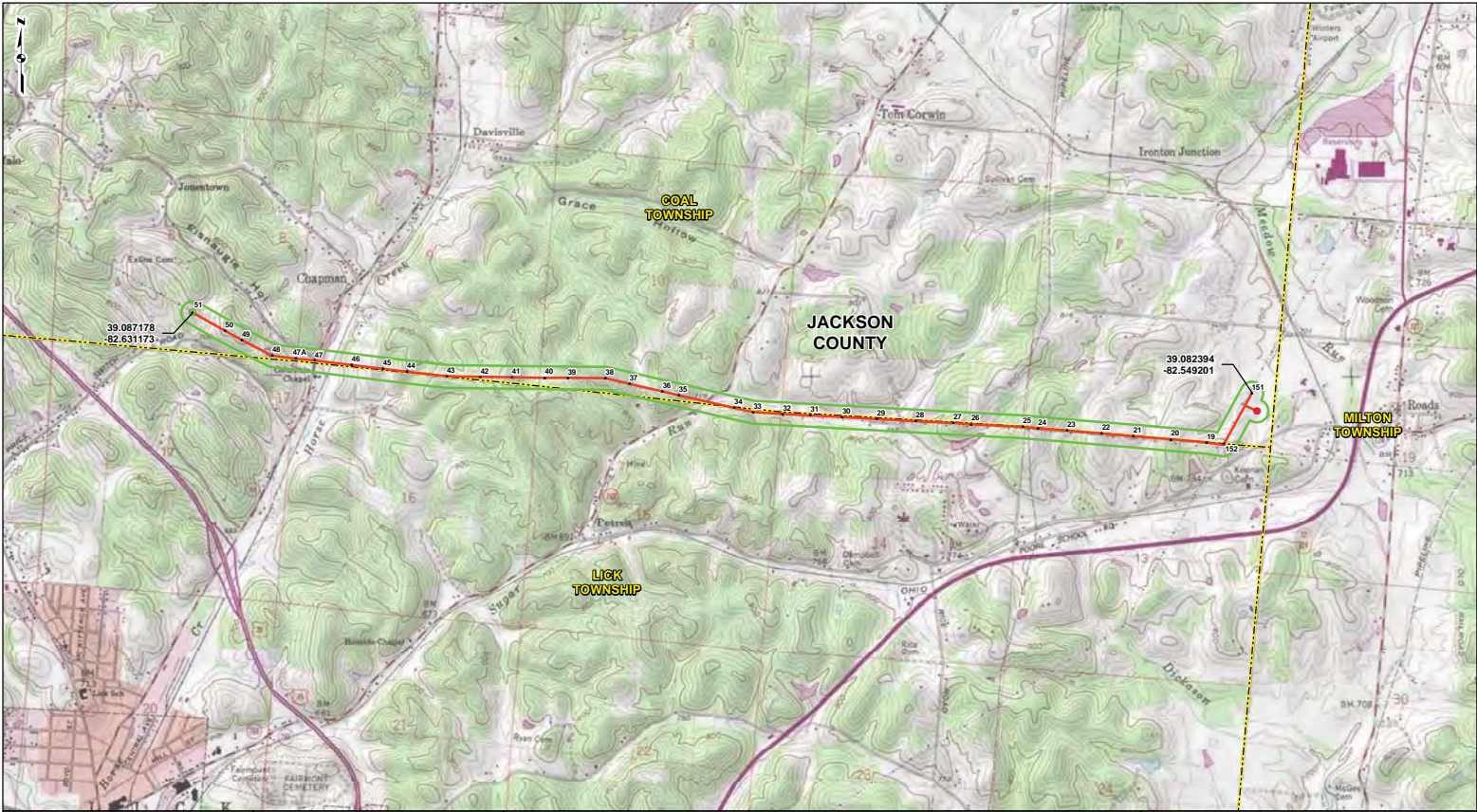
A handwritten signature in blue ink, appearing to read 'Allison R. Wheaton'.

Allison R. Wheaton, WPIT
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)
Project Shapefiles

ATTACHMENT 1
PROJECT LOCATION MAP




REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 05/2017.

LEGEND

• EXISTING STRUCTURE	— EXISTING TRANSMISSION LINE
● (PROPOSED) HEPPNER SWITCH STATION	▭ STUDY AREA
● (PROPOSED) RHODES SWITCH STATION	▭ COUNTY BOUNDARY
	▭ TOWNSHIP BOUNDARY

0 1,000 2,000 4,000 Feet

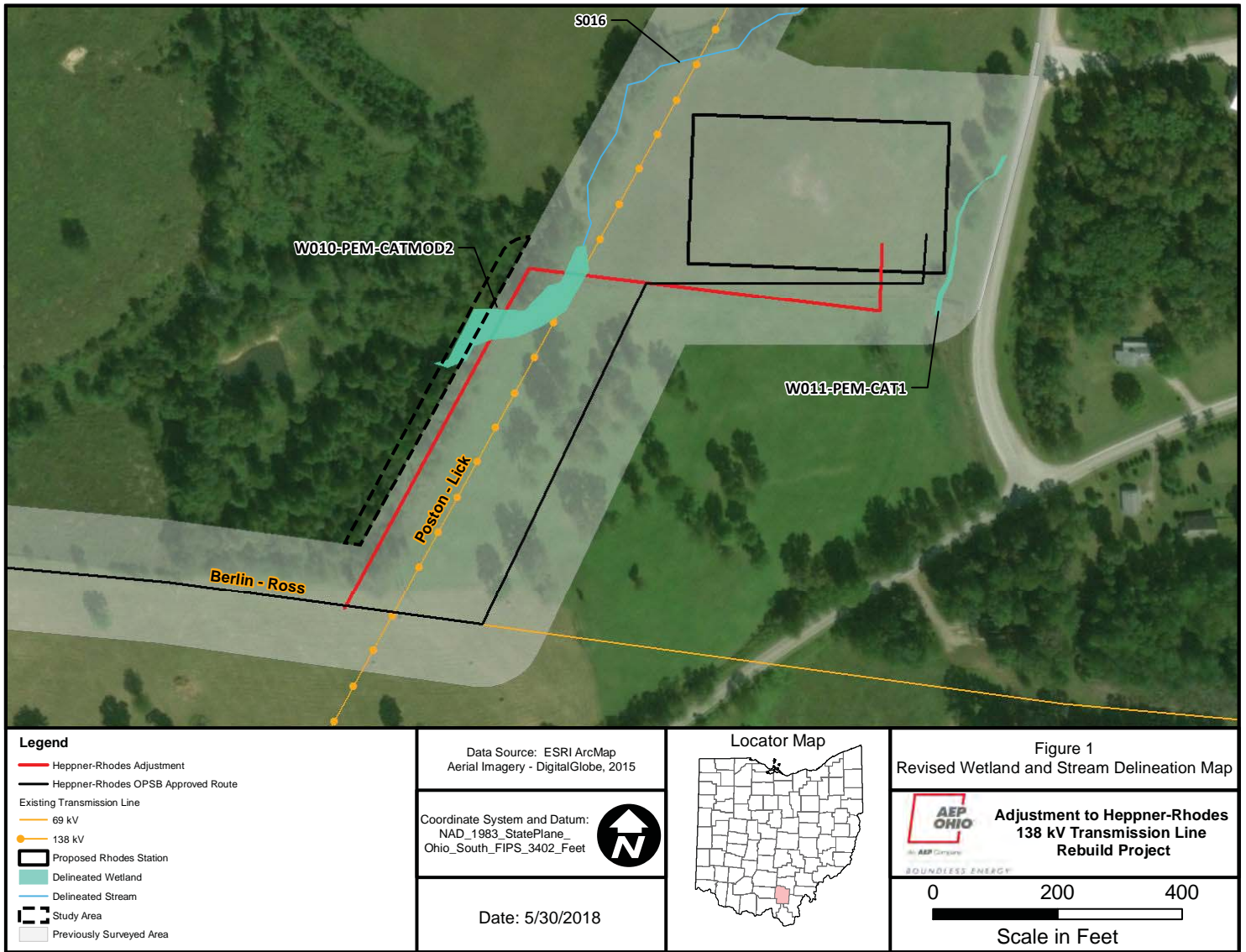
PROJECT LOCATION MAP

 **RHODES - HEPPNER**
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

DRAWN BY: AKW
CHECKED: EFJ

DATE: 5/12/2017
APPROVED:

REVISED WETLAND AND STREAM DELINEATION MAP



This foregoing document was electronically filed with the Public Utilities

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5/31/2018 3:06:12 PM

in

Case No(s). 18-0872-EL-BLN

Summary: Letter of Notification electronically filed by Ms. Christen M. Blend on behalf of AEP Ohio Transmission Power Company, Inc.