

# **LETTER OF NOTIFICATION FOR Adjustment to Heppner Switch-Lick 138 kV Transmission Line Project**



PUCO Case No. 19-1487-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.

August 13, 2019

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER SWITCH-LICK 138 KV  
TRANSMISSION LINE PROJECT**

August 2019

**LETTER OF NOTIFICATION**

**AEP Ohio Transmission Company, Inc.  
Adjustment to Heppner Switch-Lick 138 kV Transmission  
Line Project**

**4906-6-05**

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

**4906-6-5(B) General Information**

**B(1) Project Description**

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

The Company proposes an adjustment to the approved Heppner Switch-Lick 138 kilovolt ("kV") Transmission Line Project (Case Number 17-0808-EL-BLN), which will be referred to herein as Adjustment to Heppner Switch-Lick 138 kV Transmission Line Project ("Project"). The Project is located in Jackson County, Ohio.

The Project involves shifting a 0.7-mile portion of the OPSB approved centerline at the OH-32 and US-35 interchange to the west and south approximately 30-170 feet. The shift in the centerline is necessary to avoid placing poles within Ohio Department of Transportation ("ODOT") right-of-way ("ROW"). The proposed shift of the centerline can be seen in Figure 1, Appendix A.

The Project meets the requirements for a Letter of Notification ("LON") because it is within the types of projects defined by item 1(d)(ii) of Appendix A to O.A.C. 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. 19-1487-EL-BLN.

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## **B(2) Statement of Need**

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

The City of Jackson has requested a new 69 kV delivery point capable of carrying their entire load, which will be approximately 37 megawatts (“MW”) upon completion of the Project, due to a 4 MW load increase by the city. This delivery point will be redundant with the existing 138 kV delivery point out of Lick Substation.

Simulations show that once the customer load is connected at the requested load, there will be both voltage and thermal system deficiencies during several single-element outage scenarios.

The new City of Jackson delivery point will be served from the existing 37-mile Lick-Ross 69 kV line, constructed in 1926. There are 134 open conditions distributed among the line’s 275 structures. The line has been responsible for 478,000 customer-minutes of interruption (“CMI”) from 2012-2017. New circuit breakers at Heppner and Rhodes substations will help alleviate the reliability concerns.

For purposes of PJM Interconnection, LLC Regional Transmission (“PJM”), 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 for future economic development in that area, and provide transmission grid reliability and resiliency. This Project was submitted at the PJM Regional Transmission Expansion Plan meeting on March 24, 2017 and is included in the Company’s 2019 Long Term Forecast Report (“LTFR”; FE-T9, pages 57 and 68 of 102). The PJM identifier for the Project is S1342. The Company’s presentation to PJM and the 2019 LTFR forecast are presented in Appendix B.

## **B(3) Project Location**

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

The location of the Project in relation to the existing transmission lines and stations is shown on Figure 1, Appendix A.

## **B(4) Alternatives Considered**

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

The proposed centerline shift that is the subject of this application represents the most appropriate solution for meeting the Company’s need. Specifically, the adjustment of the centerline and four (4) pole

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locations is necessary in order to place poles outside of ODOT ROW at the OH-32 and US-35 interchange. No other alternatives were considered for the route adjustment. Significant socioeconomic, ecological, or construction impacts from the proposed adjustment are not expected, as the adjustments will be covered under the previously surveyed areas for the Project.

### **B(5) Public Information Program**

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

The transmission line adjustment will affect seven property owners or tenants. Two of these property owners are newly affected by the adjustment and were not affected by the original Letter of Notification (“LON”) filing.

The Company maintains a website (<http://aeptransmission.com/ohio/>) which provides the public access to an electronic copy of this LON and the public notice for this LON. A paper copy of the LON will be served to the public library in each political subdivision affected by this proposed Project. Lastly, the Company 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.**

Construction of the Heppner Switch-Lick 138 kV transmission line began in January 2019, however, construction specific to the Project is planned to begin in September 2019, and the anticipated in-service date will be approximately December 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, in Appendix A, identifies the location of the proposed Project area on a United States Geological Survey 1:24,000 quadrangle map. Figure 2, in Appendix A, is an aerial map of the Project area.

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 29 miles and turn right onto McCarty Road. At the traffic circle, take the Acy Avenue exit. Continue 0.2-mile and turn left onto Industry Drive. Continue 0.7-mile and the entrance to the existing Lick Substation will be on the right. The approximate address of the existing Lick Substation is 263 Industry Drive, Jackson, Ohio 45640 at latitude 39.0436 longitude -82.6092. The Project is located immediately north of the Lick Station.



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**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 proposed Project will be constructed primarily within or parallel to existing ROW. Provided below is a table of property parcel numbers with an indication if the easement/agreement/option necessary to construct and operate the facility has been obtained.

| <b>Property Parcel Number</b> | <b>Easement Agreement/Option Obtained<br/>(Yes/No)</b> |
|-------------------------------|--------------------------------------------------------|
| H14-006-00-037-00             | No                                                     |
| H14-006-00-037-02             | No                                                     |
| H14-006-00-030-01             | No                                                     |
| H14-006-00-031-00             | No                                                     |
| H14-006-00-033-01             | No                                                     |
| H14-006-00-074-00             | No                                                     |
| H14-006-00-069-00             | No                                                     |

**B(9) Technical Features**

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

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

The Project has the following characteristics:

Voltage: 138 kV  
ROW Width: 100 feet  
Structure Type: Structure 45: 2-pole dead-end (100 feet tall), double circuit, galvanized steel structure  
Structure 47: Monopole tangent (150 feet tall), double circuit, galvanized steel structure  
Structure 48: 2-pole dead-end (155 feet tall), double circuit, galvanized steel structure  
Structure 49: Monopole tangent (120 feet tall), double circuit, galvanized steel structure  
Shield Wire: 2- 7#8 Alumoweld used above the phase conductors  
Conductor: Heppner-Lick Circuit: (3) 1,033.5 KCM 54/7 ACSR – “Curlew”  
City of Jackson Circuit: (3) 336.4 KCM 30/7 ACSR – “Oriole”  
Insulators: Non-Ceramic Insulators (Polymer) with corona rings

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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**

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

| EMF CALCULATIONS                   |                  |                        |                      |
|------------------------------------|------------------|------------------------|----------------------|
| Condition                          | Circuit Load (A) | Electric Field (kV/m)* | Magnetic Field (mG)* |
| (1) Normal Maximum Loading         | 100.0/359.0      | 21.88/58.54/22.54      | 0.24/0.34/0.26       |
| (2) Emergency Line Loading         | 346.0/359.0      | 32.07/81.49/32.99      | 0.25/0.35/0.26       |
| (3) Winter Normal Conductor Rating | 1535.0/703.0     | 95.68/228.02/98.32     | 0.24/0.34/0.26       |

\* EMF levels (left ROW edge/maximum/right ROW edge) calculated one meter above ground assuming balanced currents and nominal voltages. Electric fields reflect normal and emergency operations; lower electric fields are expected during emergency conditions when one mutually-coupled line is out of service.

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

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

Design alternatives were not considered due to electric and magnetic field (“EMF”) strength levels. Transmission lines, when energized, generate EMF. Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. However, some people are concerned that EMF have impacts on human health. Due to these concerns, EMF associated with the new circuits was calculated and set forth in the table above. The EMF was computed assuming the highest possible EMF values that could exist along the proposed transmission line rebuild. Normal daily EMF levels will operate below these maximum load conditions. Based on studies from the National Institutes of Health, the magnetic field (measured in milliGauss, or mG) associated with emergency loading at the highest EMF

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

## **B(9)(c) Project Cost**

### **The estimated capital cost of the project.**

The capital cost estimate for the Heppner – Lick 138 kV Transmission Line Project, including the adjustments proposed by the Project, which is comprised of applicable tangible and capital costs, is approximately \$12,500,000, using a Class 3 estimate.<sup>1</sup>

## **B(10) Social and Economic Impacts**

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

#### **B(10)(a) Land Use Characteristics**

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

The Project is located within Lick Township, Jackson County, Ohio. Land use in the vicinity of the Project includes wooded/forested areas and roadways and highways. No residences are located within 50-feet of the Project. An aerial photograph of the Project vicinity is provided in Figure 2, Appendix A.

#### **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 or crossed by any registered agricultural district land, based on data received from the Jackson County Auditor's office on August 1, 2019. Additionally, the Project Area does not contain any active agricultural row crop land (see Figure 2, Appendix A).

<sup>1</sup> Section 4906-6-05(B)(9)(c) of AEP Ohio Transco's LON filing in Case No. 17-0808-EL-BLN indicated that Project costs would be approximately \$10,000,000. That cost estimate was based on a Class 4 estimate. The above cost estimate has been updated to reflect the anticipated cost of the transmission facilities that are the subject of this filing.

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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.**

Archaeological and historic architectural investigations were conducted by the Company's consultant for the Project. No cultural resource concerns were identified within the original Project area. A correspondence letter from the State Historic Preservation Office ("SHPO") was received offering concurrence that the Project "...will not affect historic properties." and that "No further coordination with this office is necessary...". A copy of the letter from the SHPO is included in Appendix C. Coordination efforts with SHPO are occurring for the Project and will be coordinated directly with OPSB.

**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 was filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000005 and was approved in January 2019. The Company will implement and maintain best management practices ("BMPs"), as outlined in the project-specific Storm Water Pollution Prevention Plan ("SWP3"), to minimize erosion and control sediment to protect surface water quality during storm events.

The Project will not impact streams, however, permanent and temporary wetland impacts are anticipated. The impacts from the prior approved route have not changed as a result of the route adjustment. The Project requires a Clean Water Act Section 404 Nationwide Permit from the U.S. Army Corps of Engineers and a preconstruction notification was filed in January 2019, a response was received from the U.S. Army Corps of Engineers in February 2019. In addition, it is anticipated that the Project will meet the terms and conditions of the pre-authorized Section 401 Water Quality Certification from the Ohio Environmental Protection Agency.

**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 Services' ("USFWS") *Federally Listed Species by Ohio Counties May 2017* (available at <https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyListMay2017.pdf>) was

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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 Project, a coordination letter was submitted to the USFWS Ohio Ecological Services Field Office seeking technical assistance on the Project for potential impacts to threatened or endangered species. The May 31, 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. The proposed Project will require tree clearing within existing and new ROW. Through additional surveys and coordination with USFWS, no restrictions are required for tree clearing within the limits of disturbance proposed for the Project.

The USFWS response letter also indicated that the proposed Project is within the range of the running buffalo clover. The USFWS recommends completing the work between August 1 and March 30 after the perennial plant has died back for the season and foliage will not be damaged or destroyed. If work is to be completed outside of that time window, the USFWS requests a survey for running buffalo clover be completed in the section of the line running through Lick Township, Jackson County. Presence/absence surveys for running buffalo clover were completed by the Company's consultant and the species was not identified during the survey. In an email dated July 16, 2018 (see Appendix D), USFWS concurred with the results and conclusions of the running buffalo clover survey report and impacts to the species are not anticipated.

The Project also lies within the range of the timber rattlesnake, a federal species of concern. In their coordination response letter, the USFWS provided several project management strategies for avoiding impacts to timber rattlesnakes and their habitat. In accordance with the recommendations, a habitat survey was conducted by an approved herpetologist in March 2018 for the existing Heppner-Lick 69 kV Transmission Line ROW and Preferred Route at the time of the survey. No suitable habitat was identified during the survey. In an email dated May 1, 2018 (see Appendix D), USFWS concurred with the results and conclusions of the timber rattlesnake habitat report and impacts to the species are not anticipated.

The USFWS letter dated May 31, 2017 did not include any comments specific to the other federally listed species.

Several state-listed threatened species, endangered species, and species of concern are listed by the Ohio Department of Natural Resources ("ODNR") (available at <http://wildlife.ohiodnr.gov/species-and-habitats/state-listed-species/state-listed-species-by-county>) as occurring, or potentially occurring in Jackson County.

A coordination letter was submitted to the ODNR in May 2017, seeking an environmental review of the proposed Project for potential impacts on state-listed threatened or endangered species. The October 23, 2017 response letter from ODNR (see Appendix D; Project ID 17-639) indicated that the Project is within the range of the Indiana bat, a state endangered species, as well as a federally endangered species, but if tree clearing occurs between October 1 and March 31, the ODNR 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

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species: little spectaclecase (*Villosa lienosa*), Ohio lamprey (*Ichthyomyzon bdellium*), lake chubsucker (*Erimyzon sucetta*), timber rattlesnake (*Crotalus horridus horridus*), Kirtland's snake (*Clonophis kirtlandii*), mud salamander (*Pseudotriton montanus*), and black bear (*Ursus americanus*). In regards to mussels, the ODNR letter states that the Project must not have an impact on freshwater native mussel species at the Project site and includes both listed and non-listed species. No in-stream work is proposed therefore mussel species are not proposed to be impacted. The Ohio lamprey and lake chubsucker are not anticipated to be impacted as no in-water work is proposed in a perennial stream. Lastly, with respect to the timber rattlesnake, Kirtland's snake, mud salamander, and black bear, the ODNR indicated in their response letter that based on the Project location, the type of habitat along the Project route and within the vicinity of the Project route, or the mobility of the species, this Project is not likely to impact these species.

### **B(10)(f) Areas of Ecological Concern**

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

A review of the National Wetlands Inventory ("NWI") database indicated that there are no NWI- mapped wetlands identified within the Project Area. Wetland and stream delineation field surveys were completed within the Project area by the Company's consultant in July 2017, October 2017, December 2017 and April 2018. During the field wetland and stream delineation, four wetlands and seven stream segments were identified within the Project area. The location of identified streams and wetlands within the Project area are shown on Figure 3 in Appendix A. Delineation forms and associated pictures for the wetlands and streams identified in the Project area are included in Appendix E.

No wildlife management areas or nature preserve lands are located within 1,000 feet of the Project. 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 39079C0161K). Based on this mapping, no FEMA Regulatory Floodways are located in the Project area.

### **B(10)(g) Unusual Conditions**

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

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

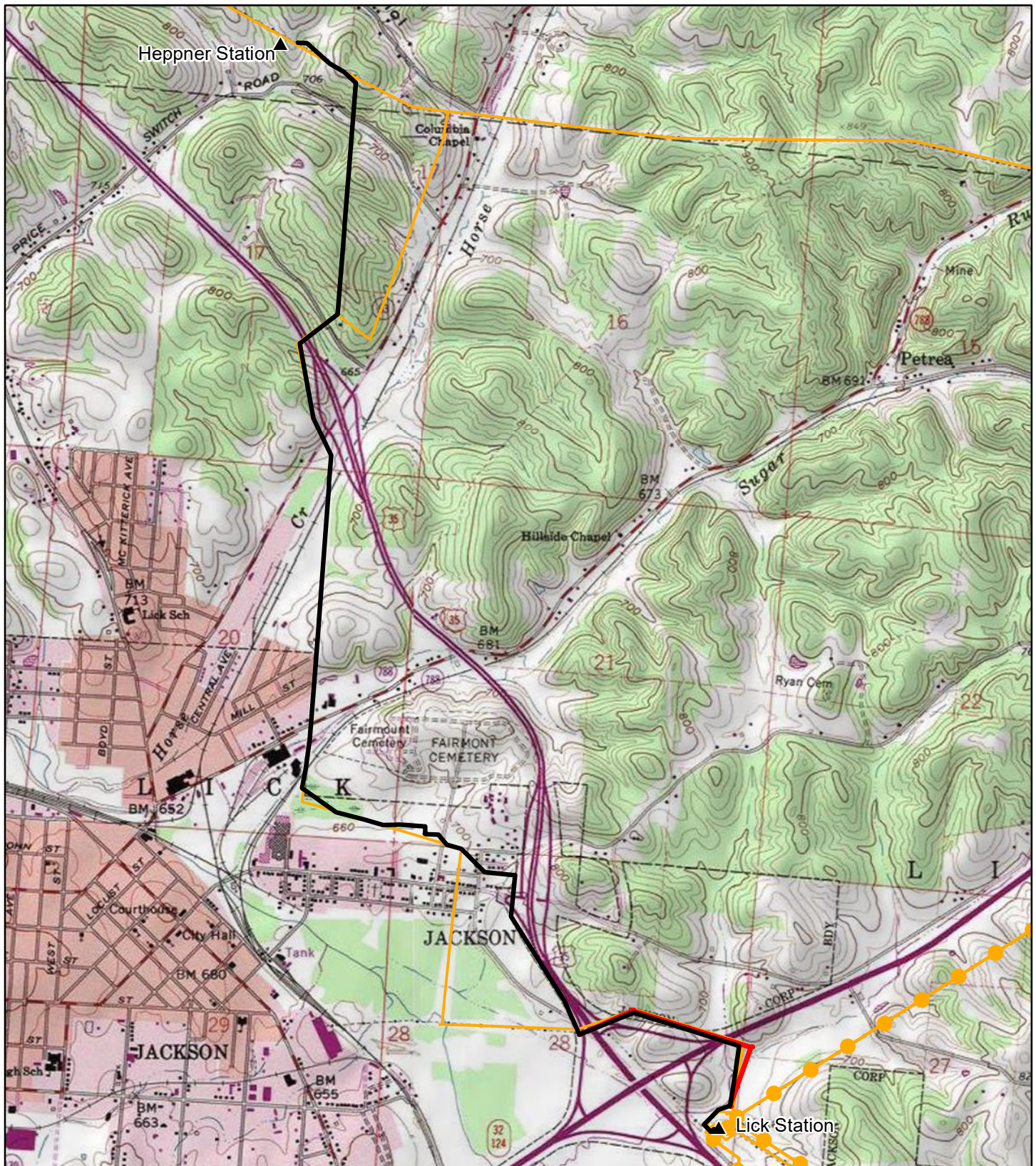
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**Appendix A Project Maps**

Figures 1, 2, and 3





### Legend

- ▲ Substation
- OPSB Approved Route
- Adjusted Route
- Existing 69 kV Transmission Line
- Existing 138 kV Transmission Line

Data Sources: AEP,  
Topographic Background

Coordinate System and Datum:  
NAD\_1983\_StatePlane\_  
Ohio\_South\_FIPS\_3402\_Feet



Date:  
August 12, 2019

### Locator Map



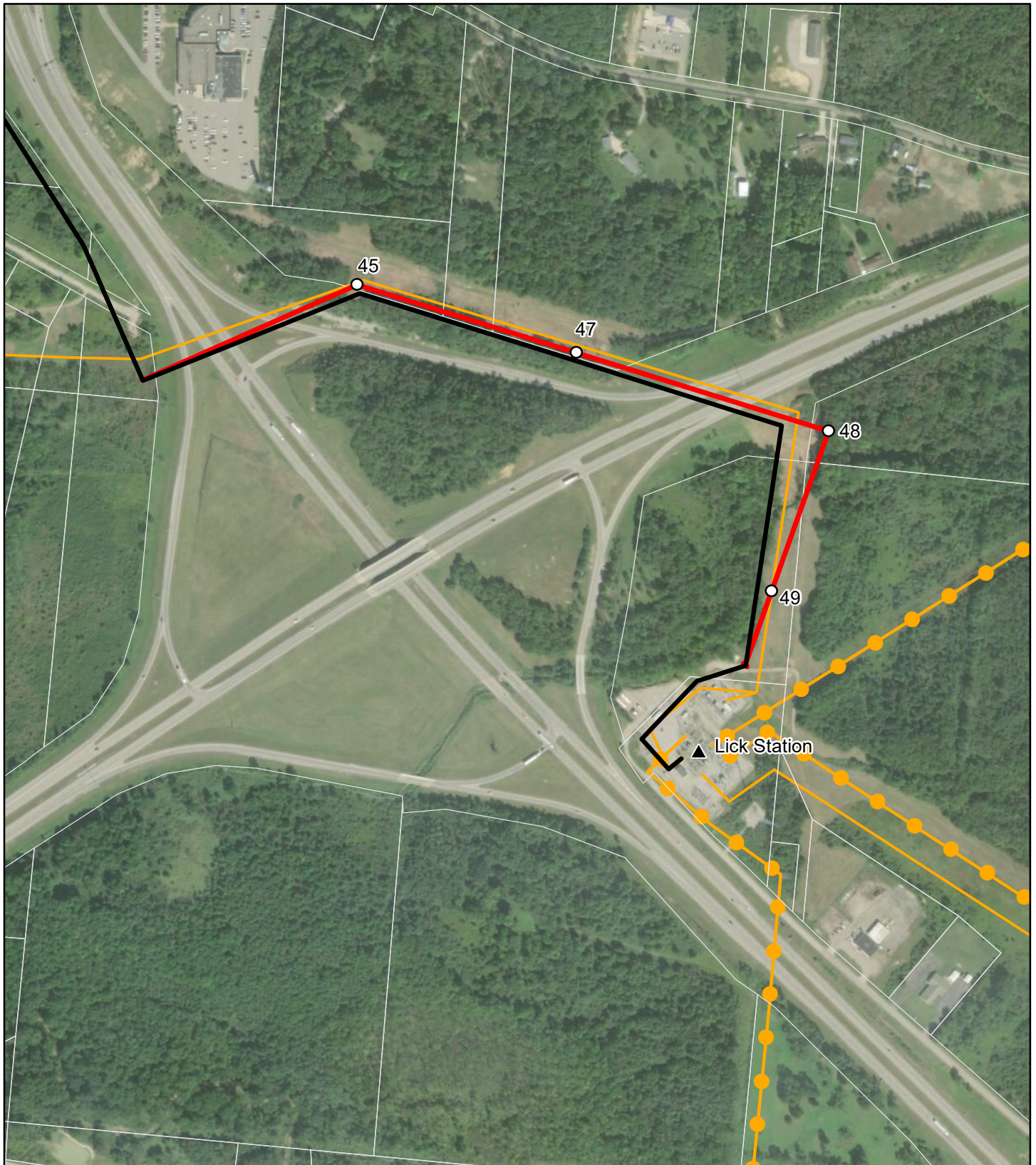
### Figure 1 Project Location Map



Adjustment to Heppner - Lick  
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Line Project

0 750 1,500 3,000  
Feet





## Legend

- ▲ Substation
- Proposed Pole Location
- OPSB Approved Route
- Adjusted Route
- Existing 69 kV Transmission Line
- Existing 138 kV Transmission Line
- Parcel Boundary

Data Sources: AEP,  
World Imagery

Coordinate System and Datum:  
NAD\_1983\_StatePlane\_  
Ohio\_South\_FIPS\_3402\_Feet



Date:  
August 12, 2019

## Locator Map



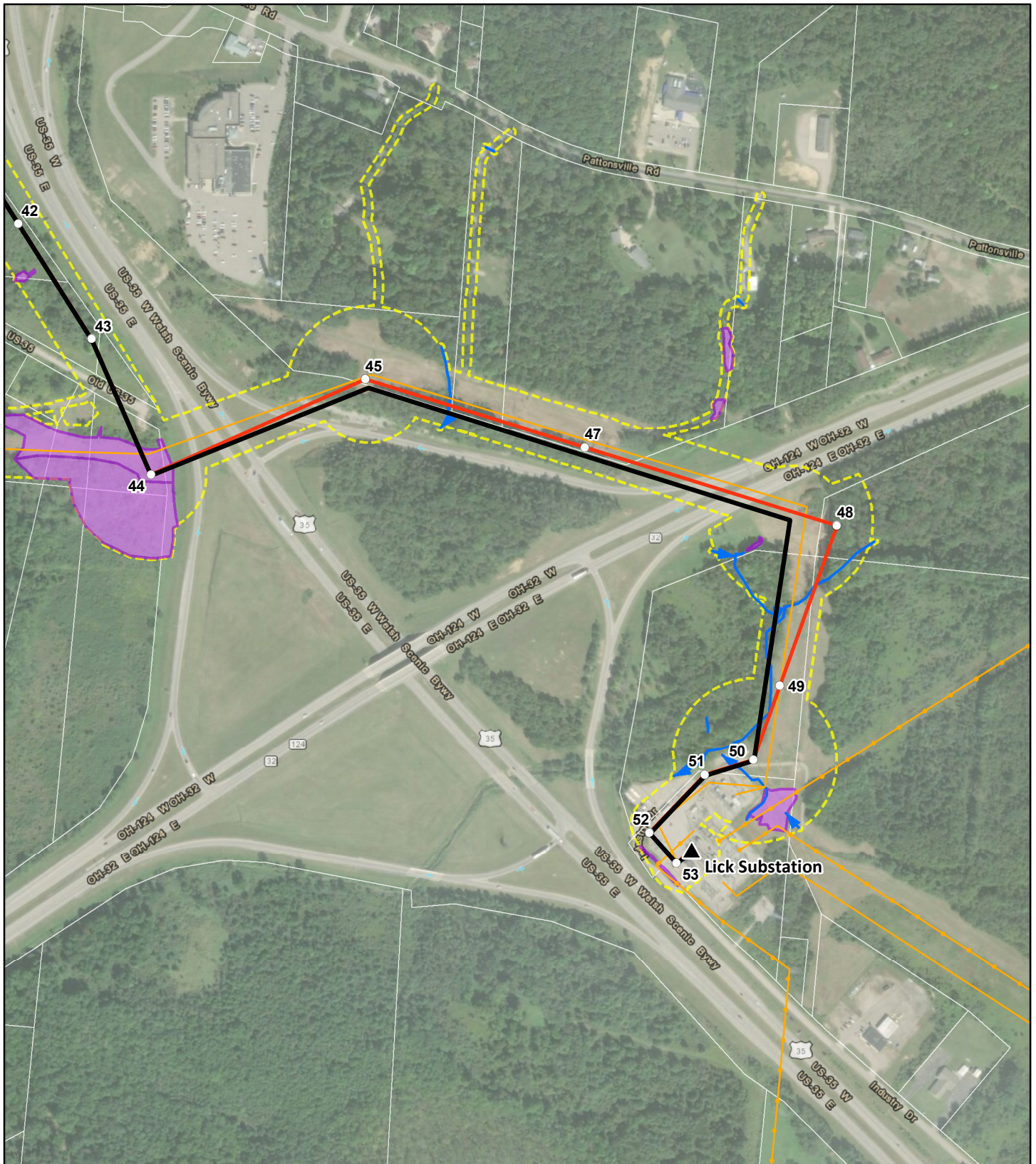
## Figure 2 Aerial Project Map



Adjustment to Heppner - Lick  
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Line Project

0 175 350 700  
Feet





### Legend

- ▲ Substation
- Proposed Pole Location
- OPSB Approved Route
- Adjusted Route
- Existing 69kV Transmission Line
- Existing 138kV Transmission Line
- Stream
- Wetland
- Study Area
- Parcel Boundary

World Imagery and Transportation,  
Esri ArcGIS Online,  
Accessed 08/2019. Existing AEP  
Transmission Lines, AEP, 2015.

NAD 1983 State Plane  
Ohio South Feet

August 08, 2019



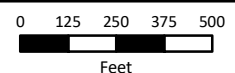
### Locator Map



**Figure 3**  
**Aerial Project Map**



**Adjustment to Heppner - Lick  
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**Appendix B      2019 Long Term Forecast and PJM Submittal**

## **PJM Submittal**



## AEP Transmission Owner Criteria Violation and Supplemental Project

### Problem Statement:

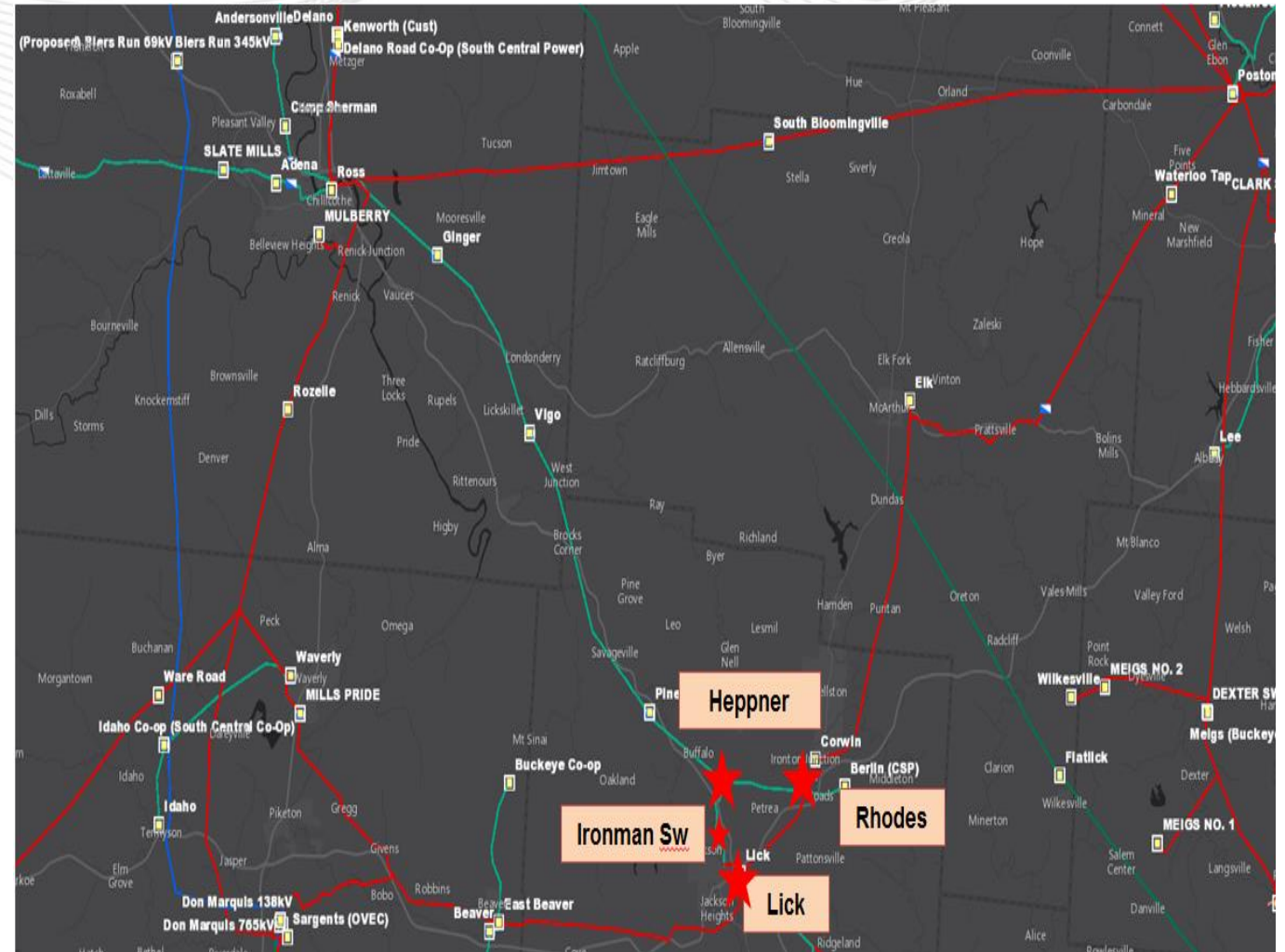
The City of Jackson has requested a new 69kV delivery point (Ironman Switch) capable of carrying their entire load, which will be ~37 MW due to a 4 MW load increase by the City. This new delivery point will be redundant with the existing 138kV delivery point out of Lick Station.

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 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)

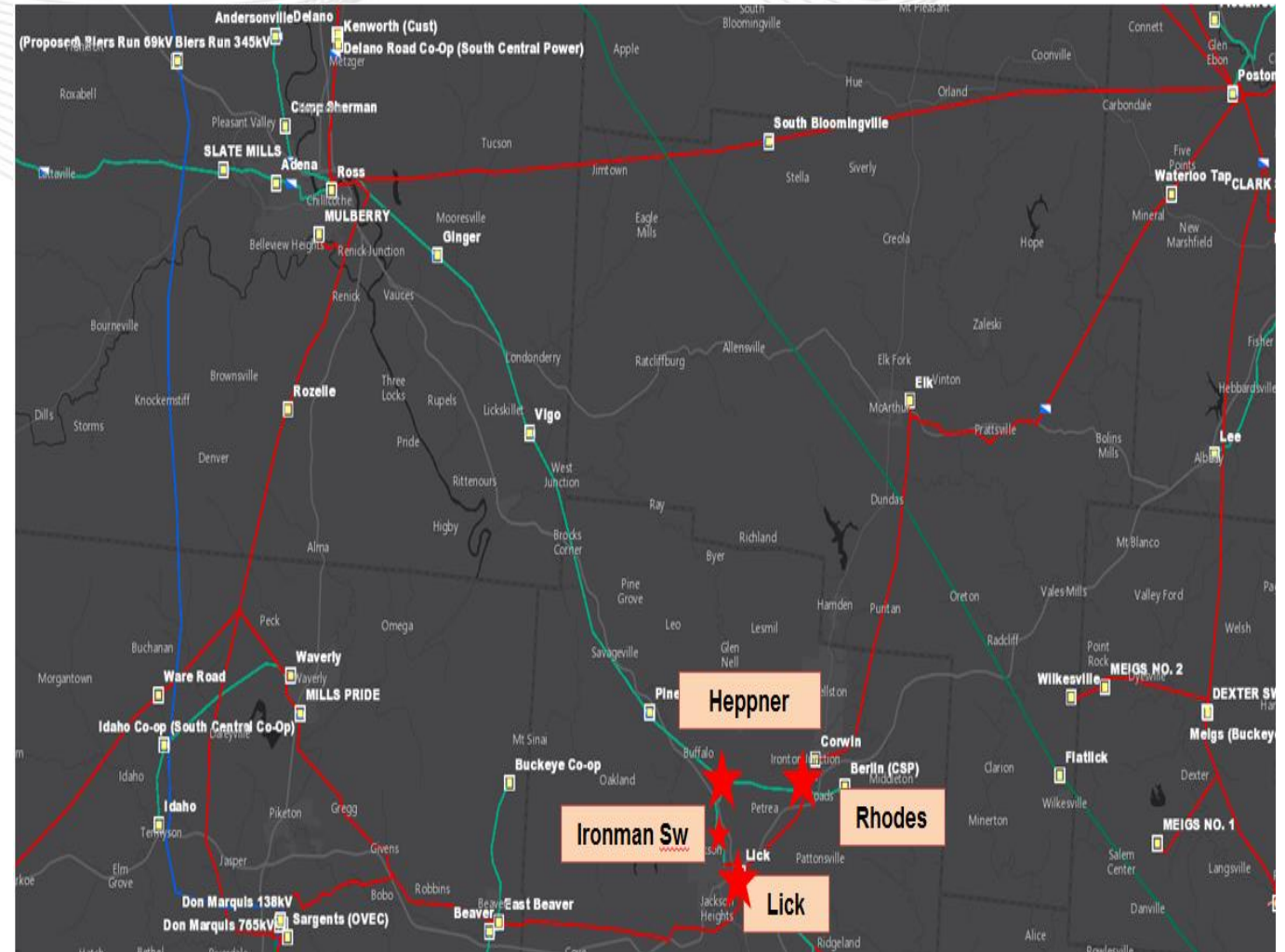
**Estimated Cost: \$13M**

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**



## **2019 Long Term Forecast Report**



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

|     |                                                            |                                                                                       |
|-----|------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1.  | LINE NAME AND NUMBER:                                      | Heppner - Ironman, 138kV, 21879 (S1342)                                               |
| 2.  | POINTS OF ORIGIN AND TERMINATION                           | Heppner, Ironman; INTERMEDIATE STATION - N/A                                          |
| 3.  | RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS                   | 2.8 miles / 100 ft / 1 circuit                                                        |
| 4.  | VOLTAGE: DESIGN / OPERATE                                  | 138kV / 69kV                                                                          |
| 5.  | APPLICATION FOR CERTIFICATE:                               | LON filed May, 2018                                                                   |
| 6.  | CONSTRUCTION:                                              | 2019                                                                                  |
| 7.  | CAPITAL INVESTMENT:                                        | ~\$5M                                                                                 |
| 8.  | PLANNED SUBSTATION:                                        | NAME - Heppner; TRANSMISSION VOLTAGE - 69kV; ACREAGE - 5;<br>LOCATION - Jackson, Ohio |
| 9.  | SUPPORTING STRUCTURES:                                     | Steel H-frame                                                                         |
| 10. | PARTICIPATION WITH OTHER UTILITIES                         | N/A                                                                                   |
| 11. | PURPOSE OF THE PLANNED TRANSMISSION LINE                   | Rebuild of existing 69kV line, asset renewal of aging infrastructure                  |
| 12. | CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION | Increased risk of equipment failure.                                                  |
| 13. | MISCELLANEOUS:                                             | N/A                                                                                   |

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

|     |                                                            |                                                                       |
|-----|------------------------------------------------------------|-----------------------------------------------------------------------|
| 1.  | LINE NAME AND NUMBER:                                      | Lick - Ironman (S1342)                                                |
| 2.  | POINTS OF ORIGIN AND TERMINATION                           | Ironman, Lick; INTERMEDIATE STATION - N/A                             |
| 3.  | RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS                   | 2 circuit (1 mile), 1 circuit (0.9 mile) 100 ft                       |
| 4.  | VOLTAGE: DESIGN / OPERATE                                  | 138kV / 69kV                                                          |
| 5.  | APPLICATION FOR CERTIFICATE:                               | LON March 2018                                                        |
| 6.  | CONSTRUCTION:                                              | 2019                                                                  |
| 7.  | CAPITAL INVESTMENT:                                        | \$6M                                                                  |
| 8.  | PLANNED SUBSTATION:                                        | NAME - N/A; TRANSMISSION VOLTAGE - N/A; ACREAGE - N/A; LOCATION - N/A |
| 9.  | SUPPORTING STRUCTURES:                                     | Steel H-frame                                                         |
| 10. | PARTICIPATION WITH OTHER UTILITIES                         | N/A                                                                   |
| 11. | PURPOSE OF THE PLANNED TRANSMISSION LINE                   | Rebuild of existing 69kV line, asset renewal of aging infrastructure  |
| 12. | CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION | Increased risk of failure.                                            |
| 13. | MISCELLANEOUS:                                             | N/A                                                                   |

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER SWITCH-LICK 138 KV  
TRANSMISSION LINE PROJECT**

August 2019

**Appendix C SHPO Correspondence**



In reply, please refer to:  
2017-JAC-39798

September 8, 2017

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

**RE: Heppner-Lick 69kV/138kV Rebuild Project, Lick and Coal Township, Jackson County, Ohio**

Dear Mr. Weller:

This letter is in response to the correspondence received on August 21, 2017 regarding the proposed Heppner-Lick 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 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 8.1 km (5.0 mi) Heppner-Lick 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 identified archaeological sites are located within the project area. Three (3) Ohio Archaeological Sites (33JA0016, 33JA0022, and 33JA0074) are located within the study area. While all three sites are significant and may require additional testing, they are located outside the project area and will not be affected by the proposed work. Three (3) archaeological sites we identified during survey and all sites were prehistoric period lithic scatters identified during shovel test unit excavation. OAI#33JA0416 consisted of Upper Mercer primary and secondary thinning flakes. OAI#33JA0417 consisted of Vanport and Upper Mercer primary and secondary thinning flakes and a core fragment. OAI#33JA0418 consisted of a Vanport primary thinning flake and a Pebble secondary decortication flake. None of the sites were recommended 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 additional archaeological survey is needed.

Petrea Cemetery (OGSID#13704) is documented as being located immediately adjacent to the project area. However, visual investigations during fieldwork did not identify the location of the cemetery. Additional research has shown that the currently documented location of Petrea Cemetery is likely incorrect. *Cemetery inscriptions of Jackson County, Ohio: collected during the period of 1978-1982* (Hixon & Hixon 1982) maps the cemetery on the north side of SR 788 and north of Fairmount Cemetery. Based on this information, as well as communication with local cemetery recorders, is more likely that Petrea Cemetery is located further north and east along SR 788 than is currently documented. Hixon & Hixon documented four individuals buried in the cemetery. While the exact location of Petrea Cemetery is currently unknown, it is unlikely the proposed project will affect the cemetery.

RPR Serial No: 1070151, 1070152



Mr. Ryan Weller  
Page 2  
September 8, 2017

The following comments pertain to the *History/Architecture Investigations for the Proposed 8.1 km (5.0 mi) Heppner-Lick 69kV/138kV Rebuild Project in Lick and Coal Townships, Jackson County, Ohio* by Weller & Associates, Inc. (2017).

The investigations included a background literature review and systematic survey of all properties 50 years of age or older that are situated within 1,000' of the centerline of the proposed project. In total, seventy-six (76) individual properties of fifty years of age or older were identified within the survey APE that may have a direct line-of-sight to the project. Out of the seventy-six properties that were identified, three were advanced to detailed study. A previously identified, newly recorded OHI (JAC0022905) and two OHIs newly identified in this survey (JAC0023205 and JAC0023105).

Weller previously recommended JAC0022905 as eligible for inclusion in the National Register of Historic Places (NRHP) under Criterion C, and our office agreed with this recommendation. Weller also recommends JAC0023205 as eligible for inclusion in the NRHP under Criterion A and JAC0023105 as eligible for inclusion in the NRHP under Criterion C. Our office agrees that these properties are NRHP-eligible.

Weller has provided documentation to support their contention that the proposed transmission line upgrade will not diminish the historic characteristics that may contribute to the above-referenced properties' NRHP eligibility. Therefore, we agree that the project as proposed will have no indirect adverse 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](mailto:khorricks@ohiohistory.org). Thank you for your cooperation.

Sincerely,



Krista Horrocks, Project Reviews Manager  
Resource Protection and Review

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

RPR Serial No: 1070151, 1070152

**OHIO HISTORY CONNECTION**

800 E. 17th Ave., Columbus, OH 43211-2474 • 614.297.2300 • [ohiohistory.org](http://ohiohistory.org)



In reply refer to  
2017-JAC-39798

December 19, 2017

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

**RE: Heppner-Lick 69kV/138kV Rebuild Project-Addendum Report, Lick and Coal Township,  
Jackson County, Ohio**

Dear Mr. Weller:

This letter is in response to the correspondence received on November 28, 2017 regarding the proposed Heppner-Lick 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 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 *Addendum: Phase I Cultural Resource Investigations for Line Reroutes Associated with the Heppner-Lick 69kV/138kV Electric Line in Coal and Lick Townships, Jackson County, Ohio* by Weller & Associates, Inc. (2017).

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 archaeological sites were identified during this survey. Three (3) previously identified archaeological sites, Ohio Archaeological Inventory (OAI)#33JA0416-33JA0418, were identified previously in the survey work for this project that took place in August 2017. The sites were recommended not eligible for listing in the National Register of Historic Places (NRHP) in our previous coordination letter, dated September 8, 2017. These archaeological sites were not impacted by the change in line reroutes as part of this survey. Based on the information provided, we still agree the archaeological sites are not eligible for listing in the NRHP and no additional archaeological survey is needed. No above-ground resources over the age of fifty years old were identified in the 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](mailto:khorrocks@ohiohistory.org). Thank you for your cooperation.

Sincerely,

Krista Horrocks, Project Reviews Manager  
Resource Protection and Review

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

RPR Serial No: 1071401





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 [khorricks@ohiohistory.org](mailto:khorricks@ohiohistory.org). Thank you for your cooperation.

Sincerely,

Krista Horrocks, Project Reviews Manager  
Resource Protection and Review

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

RPR Serial No: 1074073

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER SWITCH-LICK 138 KV  
TRANSMISSION LINE PROJECT**

August 2019

**Appendix D USFWS and ODNR Correspondence**





Canton Office  
3720 Dressler Road Northwest  
Canton, Ohio 44718

T 330.433.2680  
F 330.433.2694

May 12, 2017  
Project C170352.07

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  
Heppner – Lick 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 Heppner – Lick 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 4.9 miles of the Heppner – Lick 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](mailto: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'.

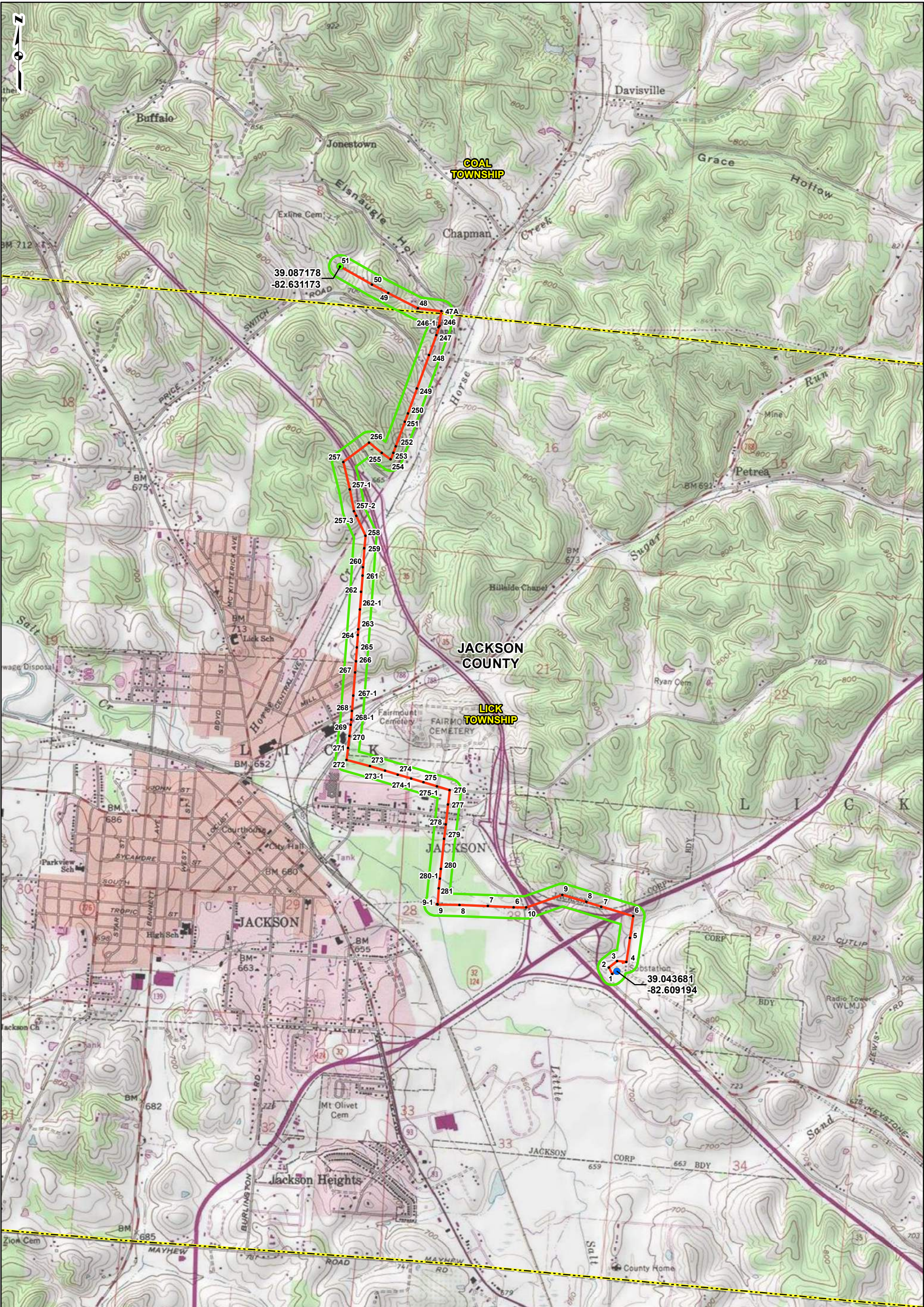
Allison R. Wheaton, WPIT  
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)  
Project Shapefiles

**ATTACHMENT 1**  
**PROJECT LOCATION MAP**





|                                                                                                                                         |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>PROJECT LOCATION</p>  <p>JACKSON COUNTY, OHIO</p> | <p>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.</p> | <p>LEGEND</p> <ul style="list-style-type: none"><li>EXISTING STRUCTURE</li><li>(PROPOSED) HEPPNER SWITCH STATION</li><li>(EXISTING) LICK SUBSTATION</li><li>EXISTING TRANSMISSION LINE</li><li>COUNTY BOUNDARY</li><li>TOWNSHIP BOUNDARY</li><li>STUDY AREA</li></ul> <p>0 1,000 2,000 4,000 Feet</p> | <p>PROJECT LOCATION MAP</p> <p>HEPPNER - LICK<br/>138kV LINE REBUILD PROJECT<br/>AMERICAN ELECTRIC POWER</p> <p>DRAWN BY: AKW<br/>CHECKED: EFJ</p> <p>DATE: 5/12/2017<br/>APPROVED:</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|





# Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

**Office of Real Estate**  
*Paul R. Baldrige, Chief*  
2045 Morse Road – Bldg. E-2  
Columbus, OH 43229  
Phone: (614) 265-6649  
Fax: (614) 267-4764

October 23, 2017

Allison Wheaton  
GAI Consultants  
3720 Dressler Road NW  
Canton, Ohio 44718

**Re:** 17-639; Heppner - Lick 138kV Line Rebuild Project

**Project:** The proposed project involves the rebuilding of approximately 4.9 miles of the Heppner-Lick138kV transmission line.

**Location:** The proposed project is in Coal and Lick Townships, Jackson County, Ohio.

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

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

Buttonbush shrub swamp plant community  
Lick Swamp Conservation Site  
Coalton Wildlife Area

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

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

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

The DOW recommends that impacts to streams, wetlands and other water resources be avoided



and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

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

The project is within the range of little spectaclecase (*Villosa lienosa*), a state endangered mussel. This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2016), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2016) can be found at:

<http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf>

The project is within the range of the Ohio lamprey (*Ichthyomyzon bdellium*), a state endangered fish, and the lake chubsucker (*Erimyzon sucetta*) a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. Due to the location, the type of habitat along the project route, this project is not likely to impact this species.

The project is within the range of the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet meadows and other wetlands. Due to the location, the type of habitat along the project route and within the vicinity of the project route, this project is not likely to impact this species.

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

The project is within the range of the black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, this project is not likely to impact this species.

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

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

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

[http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List\\_8\\_16.pdf](http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf)

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler  
ODNR Office of Real Estate  
2045 Morse Road, Building E-2  
Columbus, Ohio 43229-6693  
John.Kessler@dnr.state.oh.us



Canton Office  
3720 Dressler Road Northwest  
Canton, Ohio 44718

T 330.433.2680  
F 330.433.2694

May 12, 2017  
Project C170352.07

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  
Heppner – Lick 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 Heppner – Lick 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 4.9 miles of the Heppner – Lick 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](mailto: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

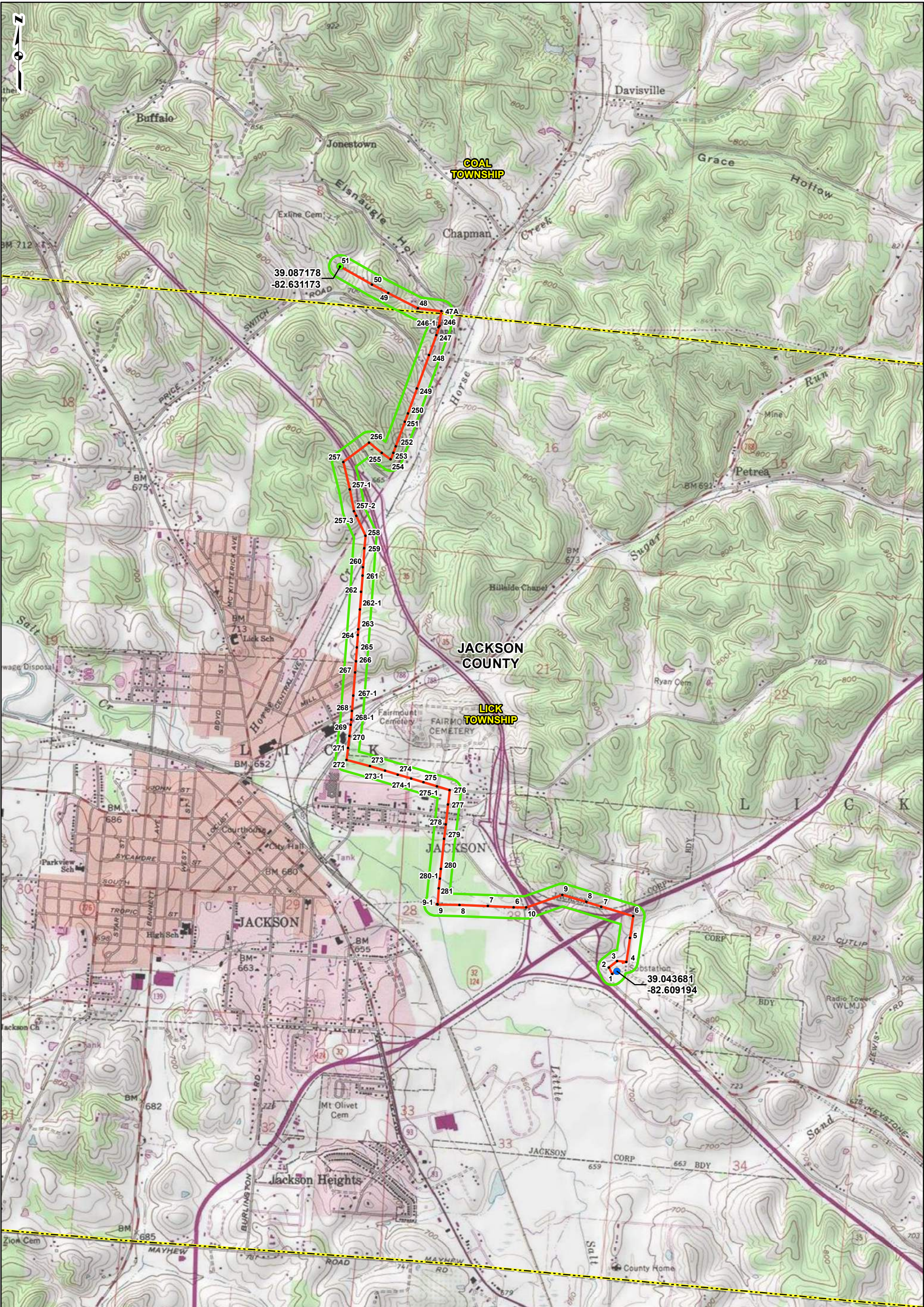
ARW/kea

Attachments: Attachment 1 (Project Location Map)  
Project Shapefiles



**ATTACHMENT 1**  
**PROJECT LOCATION MAP**





|                                                                                                                                         |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>PROJECT LOCATION</p>  <p>JACKSON COUNTY, OHIO</p> | <p>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.</p> | <p>LEGEND</p> <ul style="list-style-type: none"><li>EXISTING STRUCTURE</li><li>(PROPOSED) HEPPNER SWITCH STATION</li><li>(EXISTING) LICK SUBSTATION</li><li>EXISTING TRANSMISSION LINE</li><li>COUNTY BOUNDARY</li><li>TOWNSHIP BOUNDARY</li><li>STUDY AREA</li></ul> <p>0 1,000 2,000 4,000 Feet</p> | <p>PROJECT LOCATION MAP</p> <p>HEPPNER - LICK<br/>138kV LINE REBUILD PROJECT<br/>AMERICAN ELECTRIC POWER</p> <p>DRAWN BY: AKW<br/>CHECKED: EFJ</p> <p>DATE: 5/12/2017<br/>APPROVED:</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



**From:** [Korfel, Lindsey](#)  
**To:** [Allison Wheaton](#)  
**Cc:** [nathan.reardon@dnr.state.oh.us](mailto:nathan.reardon@dnr.state.oh.us); [kate.parsons@dnr.state.oh.us](mailto:kate.parsons@dnr.state.oh.us)  
**Subject:** 03E15000-2017-TA-1310 GAI AEP Heppner-Lick 138kV Line Rebuild Project, Jackson County, OH  
**Date:** Wednesday, May 31, 2017 10:01:31 AM

---

TAILS # 03E15000-2017-TA-1310

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  $\geq 3$  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  $\geq 3$  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  $\geq 3$  inches dbh cannot be avoided, we recommend that removal of any trees  $\geq 3$  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/nleeb/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.

The proposed project lies within the range of **running buffalo clover** (*Trifolium stoloniferum*), a federally listed endangered species. From the information provided it appears that the site does receive filtered sunlight and limited disturbance occurs due to the presence of the utility right of way. The disturbance of the existing right-of-ways may damage or destroy any existing plants. Since the existing utility easements provides suitable sunlight as well as some limited disturbance indicating suitable habitat the Service recommends completing the work between August 1 and March 30 after the perennial plant has died back for the season and foliage will not be damaged or destroyed. If work is to be completed outside of that time window, the service requests a survey for running buffalo clover be completed in the section of line running through Lick Township, Jackson County. Based on the results of the survey the Service will evaluate potential impacts to running buffalo clover from the proposed project. The survey must be coordinated with this office, and may only be completed between May and June when the plant is in flower.

The project lies within the range of the **timber rattlesnake** (*Crotalus horridus horridus*), a federal species of concern and Ohio endangered species. Your proactive efforts to conserve this species now may help avoid the need to list the species under the Endangered Species Act in the future. Due to their rarity and reclusive nature, we encourage early project coordination to avoid potential impacts to timber rattlesnakes and their habitat.

In Ohio, the timber rattlesnake is restricted to the un-glaciated Allegheny Plateau and utilizes the specific habitat types, depending upon season. Winters are spent in dens usually associated with high, dry ridges. These dens may face any direction, but southeast to southwest are most common. Such dens usually consist of narrow crevices in the bedrock. Rocks may or may not be present on the surface. From these dens, timber rattlesnakes radiate throughout the surrounding hills and move distances as great as 4.5 miles. In the fall, timber rattlesnakes return to the same den. Intensive efforts to transplant timber rattlesnakes have not been successful. Thus protection of the winter dens is critical to the survival of this

species. Some project management ideas include the following:

1. At a minimum, project evaluations should contain delineations of timber rattlesnake habitat within project boundaries. Descriptions should indicate the quality and quantity of timber rattlesnake habitat (den sites, basking sites, and foraging area, etc.) that may be affected by the project.
2. In cases where timber rattlesnakes are known to occur or where potential habitat is rated moderate to high, timber rattlesnake surveys may be necessary. If surveys are to be conducted, it may be helpful to inquire about timber rattlesnake sightings with local resource agency personnel or reliable local residents. In addition, local herpetologists may have knowledge of historical populations as well as precise knowledge of the habits, and especially the specific, local types of habitats that may contain timber rattlesnakes. Surveys should be performed during the periods of spring emergence from dens (usually a narrow window in April or May) and throughout the active season until October. The species is often easiest to locate during the summer months when pregnant females seek open areas in early morning, especially after cool evenings.
3. In portions of projects where timber rattlesnakes will be affected, clearing and construction activities should occur at distances greater than 100 feet from known dens. Most importantly, tops of ridges and areas of exposed rock should be avoided.
4. In areas where timber rattlesnake dens are known or likely to exist, maintenance activities (mowing, cutting, burning, etc.) should be conducted from November 1 to March 1, when timber rattlesnakes are hibernating.

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](mailto: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](mailto:ohio@fws.gov).

Sincerely,

**Lindsey M. Korfel**

Wildlife Biologist  
U.S. Fish and Wildlife Service

Ohio Field Office  
4625 Morse Road, Suite 104  
Columbus, OH 43230  
614.416.8993 x. 29



**From:** [Adam Mann](#)  
**To:** [Brandon W. Funk](#); [Doug D. Johnston](#); [Joshua Noble](#); [Trent R. Taylor](#)  
**Cc:** [George Reese](#); [Jason Duffey](#); [Priya Kudlu](#)  
**Subject:** FW: AEP Heppner – Lick 138kV Line Rebuild Project in Jackson County  
**Date:** Wednesday, July 10, 2019 1:44:55 PM

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USFWS concurrence for Heppner – Lick

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**From:** susan\_zimmermann@fws.gov <susan\_zimmermann@fws.gov> **On Behalf Of** Ohio, FW3  
**Sent:** Wednesday, July 10, 2019 12:58 PM  
**To:** Adam Mann <A.Mann@gaiconsultants.com>  
**Cc:** nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us;  
sarah.stankavich@dnr.state.oh.us  
**Subject:** AEP Heppner – Lick 138kV Line Rebuild Project in Jackson County

## EXTERNAL E-MAIL MESSAGE

Letterhead for Emails 2.jpg



TAILS# 03E15000-2019-TA-1526 - Survey #19-041

Dear Mr. Mann,

We have received your summer bat survey report for the subject project. The survey was conducted following current U.S. Fish and Wildlife Service (Service) guidelines. No Indiana bats (*Myotis sodalis*) were detected, demonstrating probable absence of Indiana bats in the project area. Currently, the Service has no known hibernacula or maternity roost records for northern long-eared bat (*Myotis septentrionalis*) in the vicinity of the project. Therefore, the 4(d) rule for the northern long-eared bat could be applied (see: <http://www.fws.gov/midwest/endangered/mammals/nleb/index.html>). Tree clearing on the project site at any time of the year is unlikely to result in adverse impacts to Indiana bats and will not result in any unauthorized incidental take of northern long-eared bats. Negative Indiana bat summer surveys are valid for five years. Therefore, **no tree clearing should occur on the site after March 31, 2024** without further coordination with this office.

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 Endangered Species Act, 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.

This letter provides technical assistance only and does not serve as a completed section 7 consultation document. If project plans change, if portions of the proposed project were not evaluated, or if additional information on listed or proposed species or their critical habitat becomes available, it is our recommendation that you reinitiate coordination with this office. 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](mailto: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](mailto:ohio@fws.gov).

Sincerely,

Patrice Signature.jpg



Patrice M. Ashfield,  
Field Office Supervisor

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

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO HEPPNER SWITCH-LICK 138 KV  
TRANSMISSION LINE PROJECT**

August 2019

**Appendix E Delineation Field Forms and Pictures**





**Photograph 33. Wetland W013-PEM-CAT2, Facing North**



**Photograph 34. Wetland W013-PEM-CAT2, Facing East**





**Photograph 35. Wetland W013-PFO-CAT2, Facing South**



**Photograph 36. Wetland W013-PFO-CAT2, Facing East**





**Photograph 43. Wetland W017-PEM-CAT1, Facing North**



**Photograph 44. Wetland W017-PEM-CAT1, Facing West**





**Photograph 45. Wetland W018-PEM-CAT1, Facing North**



**Photograph 46. Wetland W018-PEM-CAT1, Facing South**





**Photograph 47. Wetland W019-PEM-CAT1, Facing Southeast**



**Photograph 48. Wetland W019-PEM-CAT1, Facing Northwest**

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Lick 13B City/County: Jackson Co. Sampling Date: 7/10/2017  
 Applicant/Owner: AEP State: OH Sampling Point: W013 (PEM)  
 Investigator(s): KLV Section, Township, Range: Lick Twp.  
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 0.1  
 Subregion (LRR or MLRA): LRR Lat: 39.04772009 Long: -82.6172065 Datum: NAD83  
 Soil Map Unit Name: Pb-Piopolis Silt loam, frequently flooded NWI classification: PEM1C  
 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 W013-PEM-CAT2.  
 Data point taken in transmission maintained 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 checked="" 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 ☒ No ☐ Depth (inches): 2"  
 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, C2, 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.             |                          |                  |                   |                  |

| 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.                   |                          |                  |                   |                  |

| Herb Stratum                   | (Plot size: <u>5'</u> ) | Absolute % Cover | Dominant Species? | Indicator Status |
|--------------------------------|-------------------------|------------------|-------------------|------------------|
| 1. <u>Leersia oryzoides</u>    |                         | <u>30</u>        | <u>Y</u>          | <u>Obl</u>       |
| 2. <u>Phalaris arundinacea</u> |                         | <u>20</u>        | <u>Y</u>          | <u>FACW</u>      |
| 3. <u>Carex crinita</u>        |                         | <u>10</u>        | <u>N</u>          | <u>Obl</u>       |
| 4. <u>Juncus effusus</u>       |                         | <u>20</u>        | <u>Y</u>          | <u>FACW</u>      |
| 5. <u>Typha x glauca</u>       |                         | <u>10</u>        | <u>N</u>          | <u>Obl</u>       |
| 6.                             |                         |                  |                   |                  |
| 7.                             |                         |                  |                   |                  |
| 8.                             |                         |                  |                   |                  |
| 9.                             |                         |                  |                   |                  |
| 10.                            |                         |                  |                   |                  |
| 11.                            |                         |                  |                   |                  |
| 12.                            |                         |                  |                   |                  |

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

**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 ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup> 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: W013 (PEM)

[illegible]<sup>2</sup>Location: 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)

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

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

✓

**No**

Meets F3.

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hepper to Lick 138 City/County: Jackson Co. Sampling Date: 7/10/2017  
 Applicant/Owner: AEP State: OH Sampling Point: WOL3 (PFO)  
 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: 39.0474646 Long: -82.6191991 Datum: NAD 83  
 Soil Map Unit Name: Pb-Piopolis Silty loam, frequently flooded NWI classification: PEM1C  
 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:

PFO data point for WOL3-PFO-CAT2.  
 Data point taken at edge of maintained transmission ROW and PEM wetland.

## 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>Acer rubrum</u> |                          | <u>30</u>        | <u>Y</u>          | <u>FAC</u>       |
| 2.           |                    |                          |                  |                   |                  |
| 3.           |                    |                          |                  |                   |                  |
| 4.           |                    |                          |                  |                   |                  |
| 5.           |                    |                          |                  |                   |                  |
| 6.           |                    |                          |                  |                   |                  |
| 7.           |                    |                          | <u>30</u>        |                   | = Total Cover    |

| Sapling/Shrub Stratum |                          | (Plot size: <u>15'</u> ) | Absolute % Cover | Dominant Species? | Indicator Status |
|-----------------------|--------------------------|--------------------------|------------------|-------------------|------------------|
| 1.                    | <u>Acer rubrum</u>       |                          | <u>30</u>        | <u>Y</u>          | <u>FAC</u>       |
| 2.                    | <u>Quercus palustris</u> |                          | <u>25</u>        | <u>Y</u>          | <u>FACW</u>      |
| 3.                    | <u>Alnus serrulata</u>   |                          | <u>15</u>        | <u>Y</u>          | <u>Obl</u>       |
| 4.                    |                          |                          |                  |                   |                  |
| 5.                    |                          |                          |                  |                   |                  |
| 6.                    |                          |                          |                  |                   |                  |
| 7.                    |                          |                          |                  |                   |                  |
| 8.                    |                          |                          |                  |                   |                  |
| 9.                    |                          |                          |                  |                   |                  |
| 10.                   |                          |                          | <u>70</u>        |                   | = Total Cover    |

| Herb Stratum |                             | (Plot size: <u>5'</u> ) | Absolute % Cover | Dominant Species? | Indicator Status |
|--------------|-----------------------------|-------------------------|------------------|-------------------|------------------|
| 1.           | <u>Panicum clandestinum</u> |                         | <u>20</u>        | <u>Y</u>          | <u>FAC</u>       |
| 2.           | <u>Carex lurida</u>         |                         | <u>10</u>        | <u>N</u>          | <u>Obl</u>       |
| 3.           | <u>Agrimonia parviflora</u> |                         | <u>15</u>        | <u>N</u>          | <u>FACW</u>      |
| 4.           | <u>Phalaris arundinacea</u> |                         | <u>35</u>        | <u>Y</u>          | <u>FACW</u>      |
| 5.           |                             |                         |                  |                   |                  |
| 6.           |                             |                         |                  |                   |                  |
| 7.           |                             |                         |                  |                   |                  |
| 8.           |                             |                         |                  |                   |                  |
| 9.           |                             |                         |                  |                   |                  |
| 10.          |                             |                         |                  |                   |                  |
| 11.          |                             |                         |                  |                   |                  |
| 12.          |                             |                         | <u>80</u>        |                   | = Total Cover    |

| Woody Vine Stratum |  | (Plot size: <u>30'</u> ) | Absolute % Cover | Dominant Species? | Indicator Status |
|--------------------|--|--------------------------|------------------|-------------------|------------------|
| 1.                 |  |                          |                  |                   |                  |
| 2.                 |  |                          |                  |                   |                  |
| 3.                 |  |                          |                  |                   |                  |
| 4.                 |  |                          |                  |                   |                  |
| 5.                 |  |                          |                  |                   |                  |
| 6.                 |  |                          | <u>0</u>         |                   | = 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: 6 (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 ≤3.0<sup>1</sup>
- ☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup> 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.

Sampling Point: W013 (PFO)

[illegible]<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- |                                                                                |                                                                               |                                                                           |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1)                                         | <input type="checkbox"/> Dark Surface (S7)                                    | <input type="checkbox"/> 2 cm Muck (A10) <b>(MLRA 147)</b>                |
| <input type="checkbox"/> Histic Epipedon (A2)                                  | <input type="checkbox"/> Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  | <input type="checkbox"/> Coast Prairie Redox (A16) <b>(MLRA 147, 148)</b> |
| <input type="checkbox"/> Black Histic (A3)                                     | <input type="checkbox"/> Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>        | <input type="checkbox"/> Piedmont Floodplain Soils (F19)                  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                                 | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                             | <input type="checkbox"/> <b>(MLRA 136, 147)</b>                           |
| <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) <b>(LRR N)</b>                        | <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) <b>(LRR N, MLRA 147,148)</b> | <input type="checkbox"/> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> |                                                                           |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                              | <input type="checkbox"/> Umbric Surface (F13) <b>(MLRA 136, 122)</b>          |                                                                           |
| <input type="checkbox"/> Sandy Redox (S5)                                      | <input type="checkbox"/> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b>    |                                                                           |
| <input type="checkbox"/> Stripped Matrix (S6)                                  | <input type="checkbox"/> Red Parent Material (F21) <b>(MLRA 127, 147)</b>     |                                                                           |

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

## Hydric

Soil Present? Yes ☒ No ☐

Depth (inches):

Mects F3.

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Lick 138 City/County: Jackson OH Sampling Date: 7/10/2017  
 Applicant/Owner: AEP State: OH Sampling Point: W013-UPL  
 Investigator(s): KLV Section, Township, Range: Lick Twp.  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): convex Slope (%) 01  
 Subregion (LRR or MLRA): LRR Lat: 39.04762293 Long: -82.61817399 Datum: NAD 83  
 Soil Map Unit Name: Pb-Piopolis Siltloam, frequently flooded NWI classification: PEM1C  
 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:

Upland data point for W010:  
 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 <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 not present.



| 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>Panicum clandestinum</u> |                         | <u>15</u>        | <u>N</u>          | <u>Fac</u>       |
| 2. <u>Pod pratensis</u>        |                         | <u>25</u>        | <u>y</u>          | <u>FacU</u>      |
| 3. <u>Dactylis glomerata</u>   |                         | <u>40</u>        | <u>y</u>          | <u>FacU</u>      |
| 4.                             |                         |                  |                   |                  |
| 5.                             |                         |                  |                   |                  |
| 6.                             |                         |                  |                   |                  |
| 7.                             |                         |                  |                   |                  |
| 8.                             |                         |                  |                   |                  |
| 9.                             |                         |                  |                   |                  |
| 10.                            |                         |                  |                   |                  |
| 11.                            |                         |                  |                   |                  |
| 12.                            |                         |                  |                   |                  |
|                                |                         | <u>80</u>        | = Total Cover     |                  |

| Woody Vine Stratum                    | (Plot size: <u>30'</u> ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---------------------------------------|--------------------------|------------------|-------------------|------------------|
| 1. <u>Parthenocissus quinquefolia</u> |                          | <u>15</u>        | <u>y</u>          | <u>FacU</u>      |
| 2.                                    |                          |                  |                   |                  |
| 3.                                    |                          |                  |                   |                  |
| 4.                                    |                          |                  |                   |                  |
| 5.                                    |                          |                  |                   |                  |
| 6.                                    |                          |                  |                   |                  |
|                                       |                          | <u>15</u>        | = 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 ≤3.0<sup>1</sup>

\_\_\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup> 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.

## SOIL

Sampling Point: W013-UPL

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

[illegible]

<sup>1</sup>Type: C=concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Hydric Soil Indicators:

- \_\_\_\_\_ Histosol (A1)
- \_\_\_\_\_ Histic Epipedon (A2)
- \_\_\_\_\_ Black Histic (A3)
- \_\_\_\_\_ Hydrogen Sulfide (A4)
- \_\_\_\_\_ Stratified Layers (A5)
- \_\_\_\_\_ 2 cm Muck (A10) (**LRR N**)
- \_\_\_\_\_ Depleted Below Dark Surface (A11)
- \_\_\_\_\_ Thick Dark Surface (A12)
- \_\_\_\_\_ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147,148**)
- \_\_\_\_\_ Sandy Gleyed Matrix (S4)
- \_\_\_\_\_ Sandy Redox (S5)
- \_\_\_\_\_ Stripped Matrix (S6)

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

### Indicators for Problematic Hydric Soils<sup>3</sup>:

☐ 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)

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

## Restrictive Layer (if observed):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric  
Soil Present? Yes No ☒

## Soil Description Remarks:

Hydric Soils are not present

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hepner Lick City/County: Jackson Sampling Date: 12/4/2017  
 Applicant/Owner: NEP State: OH Sampling Point: WOLF  
 Investigator(s): KLV, ECE Section, Township, Range: Lick Township  
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 01  
 Subregion (LRR or MLRA): LRN Lat: 39.046707 Long: -82.608537 Datum: NAD 83  
 Soil Map Unit Name: St - Stendal silt loam, occasionally flooded NWT 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 for WOLF.  
 Data point taken within maintained Highway/right of way.

## 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>1"</u>  |
| Water Table Present?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Depth (inches): <u>10"</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'r</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'r</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'r</u> ) | Absolute % Cover | Dominant Species? | Indicator Status |
|------------------------------------|--------------------------|------------------|-------------------|------------------|
| 1. <u>Typha x glauca</u>           |                          | <u>30</u>        | <u>Y</u>          | <u>Obl</u>       |
| 2. <u>Scirpus atrovirens</u>       |                          | <u>25</u>        | <u>Y</u>          | <u>Obl</u>       |
| 3. <u>Lycia oryzoides</u>          |                          | <u>20</u>        | <u>Y</u>          | <u>Obl</u>       |
| 4. <u>Carex lurida</u>             |                          | <u>15</u>        | <u>N</u>          | <u>Obl</u>       |
| 5. <u>Symphoricarum latiflorum</u> |                          | <u>10</u>        | <u>N</u>          | <u>FACW</u>      |
| 6.                                 |                          |                  |                   |                  |
| 7.                                 |                          |                  |                   |                  |
| 8.                                 |                          |                  |                   |                  |
| 9.                                 |                          |                  |                   |                  |
| 10.                                |                          |                  |                   |                  |
| 11.                                |                          |                  |                   |                  |
| 12.                                |                          |                  |                   |                  |
|                                    |                          | <u>100</u>       | = Total Cover     |                  |

| Woody Vine Stratum | (Plot size: <u>30'r</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 >3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup> 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 rapid test and dominance test.

Sampling Point: W017

[illegible]<sup>2</sup>Location: 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)     |                                                                    |

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

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

Meets F3.

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Lick 138 City/County: Jackson Co. Sampling Date: 7/10/2017  
 Applicant/Owner: AEP State: OH Sampling Point: W018 (PEM)  
 Investigator(s): RLV Section, Township, Range: Lick Twp  
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 0.1  
 Subregion (LRR or MLRA): LRP Lat: 39.04404623 Long: -82.6084343 Datum: NAD 83  
 Soil Map Unit Name: St-Stendal Silty loam, occasionally 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 W018-PEM-CAT1.  
 Data point taken near substation under 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>3"</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: <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>Phalaris arundinacea</u> |                         | <u>60</u>        | <u>✓</u>          | <u>FACW</u>      |
| 2. <u>Typha x glauca</u>       |                         | <u>10</u>        | <u>N</u>          | <u>OBL</u>       |
| 3. <u>Juncus effusus</u>       |                         | <u>10</u>        | <u>N</u>          | <u>OBL</u>       |
| 4.                             |                         |                  |                   |                  |
| 5.                             |                         |                  |                   |                  |
| 6.                             |                         |                  |                   |                  |
| 7.                             |                         |                  |                   |                  |
| 8.                             |                         |                  |                   |                  |
| 9.                             |                         |                  |                   |                  |
| 10.                            |                         |                  |                   |                  |
| 11.                            |                         |                  |                   |                  |
| 12.                            |                         |                  |                   |                  |
|                                |                         | <u>80</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: 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 ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup> 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 and rapid test.

Sampling Point: W018(PEM)

[illegible]<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Indicators for Problematic Hydric Soils<sup>3</sup>:

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

|                         |     |   |    |
|-------------------------|-----|---|----|
| Hydric<br>Soil Present? | Yes | ✓ | No |
|-------------------------|-----|---|----|

Meets F3.

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hopper to Lick 138 City/County: Jackson Co. Sampling Date: 7/10/2017  
 Applicant/Owner: AEP State: OH Sampling Point: W018-UPL  
 Investigator(s): KLV Section, Township, Range: Lick Twp.  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%) 51  
 Subregion (LRR or MLRA): LRR Lat: 39.0445117 Long: -82.60850285 Datum: NAD83  
 Soil Map Unit Name: St-Stendal Silt loam - occasionally 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:

Upland data point for W018.  
Data point take near substation under 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 <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 is not present.



| 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>Trifolium pratense</u>   |                         | <u>20</u>        | <u>Y</u>          | <u>FacV</u>      |
| 2. <u>Oxalis europaea</u>      |                         | <u>10</u>        | <u>N</u>          | <u>FacU</u>      |
| 3. <u>Taraxacum officinale</u> |                         | <u>5</u>         | <u>N</u>          | <u>FacU</u>      |
| 4. <u>Poa pratensis</u>        |                         | <u>50</u>        | <u>Y</u>          | <u>FacU</u>      |
| 5. <u>Dipsacus fullonum</u>    |                         | <u>5</u>         | <u>N</u>          | <u>FacU</u>      |
| 6. _____                       |                         |                  |                   |                  |
| 7. _____                       |                         |                  |                   |                  |
| 8. _____                       |                         |                  |                   |                  |
| 9. _____                       |                         |                  |                   |                  |
| 10. _____                      |                         |                  |                   |                  |
| 11. _____                      |                         |                  |                   |                  |
| 12. _____                      |                         |                  |                   |                  |
|                                |                         | <u>90</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: 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 ≤3.0<sup>1</sup>

\_\_\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup> 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: W018-UPL

[illegible]

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- |                                                                                |                                                                               |                                                                           |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1)                                         | <input type="checkbox"/> Dark Surface (S7)                                    | <input type="checkbox"/> 2 cm Muck (A10) <b>(MLRA 147)</b>                |
| <input type="checkbox"/> Histic Epipedon (A2)                                  | <input type="checkbox"/> Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  | <input type="checkbox"/> Coast Prairie Redox (A16) <b>(MLRA 147, 148)</b> |
| <input type="checkbox"/> Black Histic (A3)                                     | <input type="checkbox"/> Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>        | <input type="checkbox"/> Piedmont Floodplain Soils (F19)                  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                                 | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                             | <input type="checkbox"/> <b>(MLRA 136, 147)</b>                           |
| <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) <b>(LRR N)</b>                        | <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) <b>(LRR N, MLRA 147,148)</b> | <input type="checkbox"/> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> |                                                                           |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                              | <input type="checkbox"/> Umbric Surface (F13) <b>(MLRA 136, 122)</b>          |                                                                           |
| <input type="checkbox"/> Sandy Redox (S5)                                      | <input type="checkbox"/> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b>    |                                                                           |
| <input type="checkbox"/> Stripped Matrix (S6)                                  | <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)            |                                                                           |

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

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

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

Hydric Soils are not present.

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Lick 138 City/County: Jackson, Co. Sampling Date: 7/10/2017  
 Applicant/Owner: AEP State: OH Sampling Point: WO19 (PEM)  
 Investigator(s): KLV Section, Township, Range: Lick Twp.  
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 0.1  
 Subregion (LRR or MLRA): LRR Lat: 39.04332798 Long: -82.160916637 Datum: NAD 83  
 Soil Map Unit Name: St-Stendal Silt loam, occasionally 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 WO19 - PEM - CAT1.</u><br><u>Data point taken adjacent to transmission substation along roadside.</u> |                                         |                             |                                       |                                         |                             |

## HYDROLOGY

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

| 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>Typha x glauca</u>      |                         | <u>30</u>        | <u>Y</u>          | <u>Obt</u>       |
| 2. <u>Sclipus a. novikens</u> |                         | <u>10</u>        | <u>N</u>          | <u>Obt</u>       |
| 3. <u>Juncus effusus</u>      |                         | <u>20</u>        | <u>Y</u>          | <u>FACW</u>      |
| 4. <u>Mimulus alatus</u>      |                         | <u>10</u>        | <u>N</u>          | <u>Obt</u>       |
| 5.                            |                         |                  |                   |                  |
| 6.                            |                         |                  |                   |                  |
| 7.                            |                         |                  |                   |                  |
| 8.                            |                         |                  |                   |                  |
| 9.                            |                         |                  |                   |                  |
| 10.                           |                         |                  |                   |                  |
| 11.                           |                         |                  |                   |                  |
| 12.                           |                         |                  |                   |                  |
|                               |                         | <u>70</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: 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 ≤3.0<sup>1</sup>

\_\_\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup> 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 present - passes the dominance test and rapid test.



Sampling Point: W019 (PEM)

[illegible]<sup>2</sup>Location: 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**)

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

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

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

Meets F3.

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner to Lick 138 City/County: Jackson Co. Sampling Date: 7/10/2017  
 Applicant/Owner: AEP State: OH Sampling Point: W019-UPL  
 Investigator(s): KLV Section, Township, Range: Lick Twp.  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%) 0%  
 Subregion (LRR or MLRA): LRR Lat: 39.0435548 Long: -82.40982211 Datum: NAD 83  
 Soil Map Unit Name: St-Strand Silty loam, occasionally 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 W019.</u><br><u>Data point taken near transmission substation,</u> |                              |                                        |                                       |                              |                                        |

## HYDROLOGY

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Wetland Hydrology Indicators:</b><br><u>Primary Indicators (minimum of one is required, check all that apply)</u><br><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14)<br><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)<br><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input type="checkbox"/> Water-Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13) |  | <u>Secondary Indicators (minimum of two required)</u><br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input type="checkbox"/> Stunted or Stressed Plants (D1)<br><input type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |  |
| <b>Field Observations:</b><br>Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/><br>Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/><br>Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/><br>(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 Indicators are not present.

| 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>Dactylis glomerata</u> |                         | <u>30</u>        | <u>Y</u>          | <u>FacU</u>      |
| 2. <u>Daucus carota</u>      |                         | <u>10</u>        | <u>N</u>          | <u>FacU</u>      |
| 3. <u>Trifolium pratense</u> |                         | <u>15</u>        | <u>N</u>          | <u>FacU</u>      |
| 4. <u>Erigeron annuus</u>    |                         | <u>10</u>        | <u>N</u>          | <u>FacU</u>      |
| 5. <u>Rd pratensis</u>       |                         | <u>20</u>        | <u>Y</u>          | <u>FacU</u>      |
| 6.                           |                         |                  |                   |                  |
| 7.                           |                         |                  |                   |                  |
| 8.                           |                         |                  |                   |                  |
| 9.                           |                         |                  |                   |                  |
| 10.                          |                         |                  |                   |                  |
| 11.                          |                         |                  |                   |                  |
| 12.                          |                         |                  |                   |                  |
|                              |                         | <u>85</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: 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 ≤3.0<sup>1</sup>
- \_\_\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
- \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup> 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: W019-UPL

[illegible]<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Indicators for Problematic Hydric Soils<sup>3</sup>:

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

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

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

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

Hydric Soils are not present.



|                                   |                      |                        |
|-----------------------------------|----------------------|------------------------|
| <b>Site:</b> AEP-Heppner-Lick 138 | <b>Rater(s):</b> KLV | <b>Date:</b> 7/10/2017 |
|-----------------------------------|----------------------|------------------------|

|            |          |
|------------|----------|
| 6          | 6        |
| max 6 pts. | subtotal |

### Metric 1. Wetland Area (size).

W013-PEM-CAT2  
W013-PFO-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)

|             |          |
|-------------|----------|
| 9           | 15       |
| 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)

|             |          |
|-------------|----------|
| 19.5        | 34.5     |
| 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 checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir             | <input type="checkbox"/> dredging                     |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other _____                  |

|             |          |
|-------------|----------|
| 11.5        | 46       |
| 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              |

|                    |
|--------------------|
| 46                 |
| subtotal this page |

Site: AEP Heppner to Lick 138 Rater(s): KLV Date: 7/10/2017

46

subtotal first page

W013-PEM-CAT2  
W013-PFO-CAT2

0 46

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 51

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                                  |

51

CAT2

End of Quantitative Rating. Complete Categorization Worksheets.

|                               |                      |                        |
|-------------------------------|----------------------|------------------------|
| Site: <u>ATP-Hoppner-Lick</u> | Rater(s): <u>KLV</u> | Date: <u>12/4/2017</u> |
|-------------------------------|----------------------|------------------------|

|            |          |
|------------|----------|
| 0          | 0        |
| max 6 pts. | subtotal |

### Metric 1. Wetland Area (size). WG17-PEM-CATI

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)

|             |          |
|-------------|----------|
| 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

- |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input type="checkbox"/> filling/grading</li> <li><input checked="" type="checkbox"/> road bed/RR track</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> other _____</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|             |          |
|-------------|----------|
| 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) 2
- ☒ Recent or no recovery (1)

Check all disturbances observed

- |                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                    |
|--------------------|
| 21                 |
| subtotal this page |

Site: AEP-Heppner-Lick Rater(s): KLV Date: 12/4/2017

21

subtotal first page

W017-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)

-1 20

max 20 pts.

subtotal

## Metric 6. Plant communities, interspersions, microtopography.

### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 2 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 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.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 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                                  |

20

CAT1

End of Quantitative Rating. Complete Categorization Worksheets.



|                                  |                      |                        |
|----------------------------------|----------------------|------------------------|
| <b>Site:</b> AEP-Hepner-Lick 138 | <b>Rater(s):</b> KLV | <b>Date:</b> 7/10/2017 |
|----------------------------------|----------------------|------------------------|

|            |          |
|------------|----------|
| 2          | 2        |
| max 6 pts. | subtotal |

### Metric 1. Wetland Area (size).

W018-PEM-CATI

Select one size class and assign score.

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

|             |          |
|-------------|----------|
| 2           | 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)

|             |          |
|-------------|----------|
| 15          | 19       |
| 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

|             |          |
|-------------|----------|
| 7           | 26       |
| 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

|    |
|----|
| 26 |
|----|

subtotal this page

Site: AEP-Hoppner-Lck138 Rater(s): KLV Date: 7/10/2017

26

subtotal first page

W018-PEM-CAT1

0 26

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 25

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                                  |

25

CAT1

End of Quantitative Rating. Complete Categorization Worksheets.

|                                  |                      |                        |
|----------------------------------|----------------------|------------------------|
| <b>Site:</b> AEP-Heppner-Lick138 | <b>Rater(s):</b> KLV | <b>Date:</b> 7/10/2017 |
|----------------------------------|----------------------|------------------------|

|            |          |
|------------|----------|
| 0          | 0        |
| max 6 pts. | subtotal |

### Metric 1. Wetland Area (size).

W019-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)

|             |          |
|-------------|----------|
| 1           | 1        |
| 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)

|             |          |
|-------------|----------|
| 9           | 10       |
| max 30 pts. | subtotal |

### Metric 3. Hydrology.

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

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

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

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

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

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3) 5
- ☐ 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

|             |          |
|-------------|----------|
| 5           | 15       |
| max 20 pts. | subtotal |

### Metric 4. Habitat Alteration and Development.

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

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

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

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

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

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3) 2
- ☒ Recent or no recovery (1)

Check all disturbances observed

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

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

|                    |
|--------------------|
| 15                 |
| subtotal this page |

Site: APP Hopper-Lick 138 Rater(s): KLV Date: 7/10/2017

15

subtotal first page

W019-PEM-CAT1

0 15

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 13

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 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.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 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                                  |

13

CAT1

End of Quantitative Rating. Complete Categorization Worksheets.





**Photograph 93. Stream S023, Upstream, Facing North**



**Photograph 94. Stream S023, Downstream, Facing South**





**Photograph 99. Stream S026, Upstream, Facing West**



**Photograph 100. Stream S026, Downstream, Facing East**





**Photograph 101. Stream S027, Upstream, Facing West**



**Photograph 102. Stream S027, Downstream, Facing East**



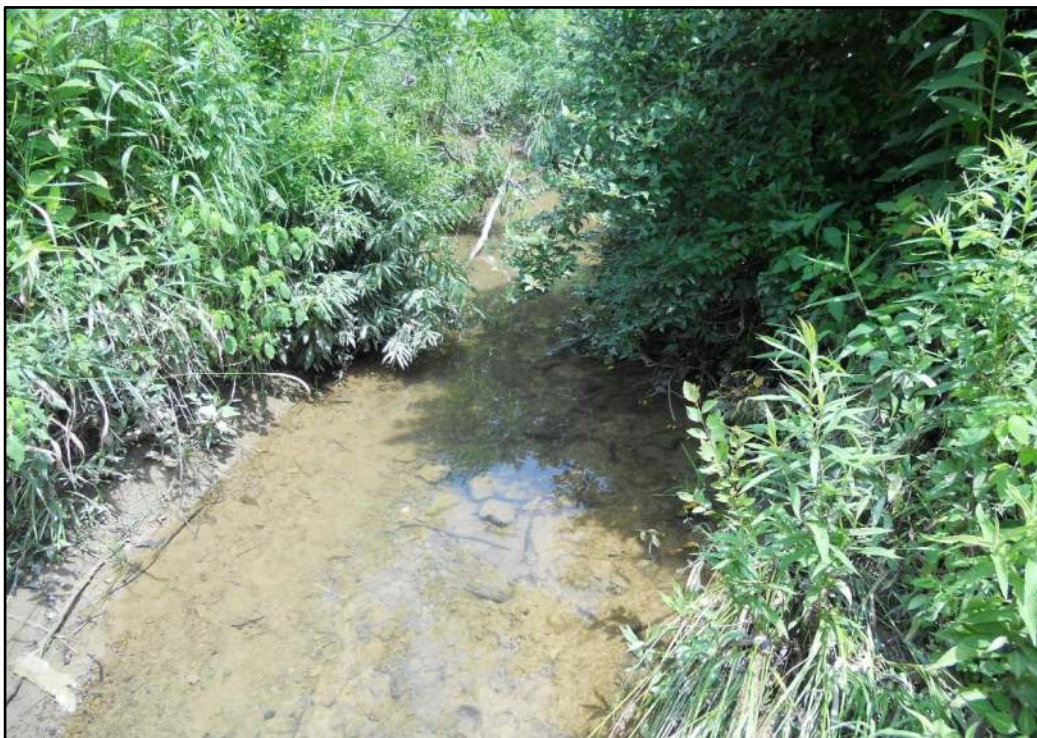


**Photograph 103. Stream S028, Upstream, Facing Northwest**



**Photograph 104. Stream S028, Downstream, Facing Southeast**





**Photograph 105. Stream S029, Upstream, Facing Northeast**



**Photograph 106. Stream S029, Downstream, Facing Southwest**





**Photograph 107. Stream S030, Upstream, Facing Southeast**



**Photograph 108. Stream S030, Downstream, Facing Northwest**





**Photograph 109. Stream S031, Upstream, Facing Southeast**



**Photograph 110. Stream S031, Downstream, Facing Northwest**



# Primary Headwater Habitat Evaluation Form

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

20

SITE NAME/LOCATION APP - Heppner to Lick 138

8023

SITE NUMBER

RIVER BASIN

Scioto River

DRAINAGE AREA (mi<sup>2</sup>)

0.05 sq. mi.

LENGTH OF STREAM REACH (ft) 243

LAT 39.04816

LONG 82.61250

RIVER CODE

RIVER MILE

DATE 7/10/2017

SCORER KLV

COMMENTS

8023 (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>10</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]                |           | <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 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):

0

Pool Depth  
Max = 30

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 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'

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**

|                                     |                                     |                |
|-------------------------------------|-------------------------------------|----------------|
| 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 type="checkbox"/> | <input type="checkbox"/> | Immature Forest, Shrub or Old Field |
| <input type="checkbox"/> | <input 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 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 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: Little Salt Creek Distance from Evaluated Stream 0.54 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: Lick Twp.

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: 4.25"  
Photograph Information: \_\_\_\_\_  
Elevated Turbidity? (Y/N): N Canopy (% open): 45%  
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**

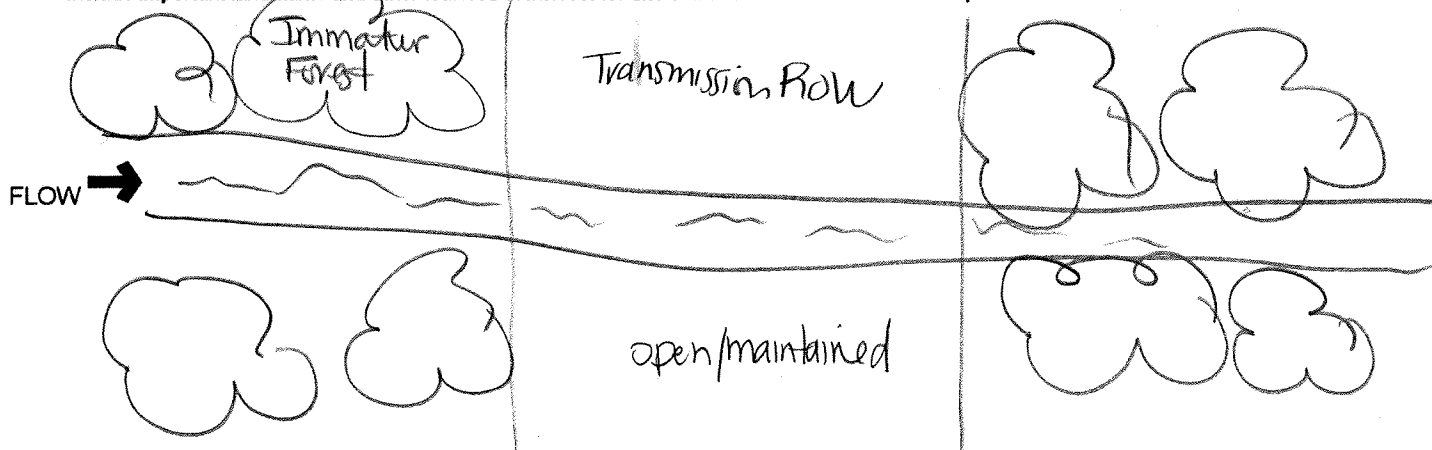
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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





**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: Salt Lick Creek (Little Salt Creek) Distance from Evaluated Stream 0.25 mi  
☐ 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: Lick Twp

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 4/24/18 Quantity: 6.08 in

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 60

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) :

44

SITE NAME/LOCATION Heppner-Lick  
SOZ7 SITE NUMBER                      RIVER BASIN Scioto River DRAINAGE AREA (mi<sup>2</sup>) 60.1mi<sup>2</sup>  
LENGTH OF STREAM REACH (ft) 37 LAT. 39.0416004 LONG. -82.608986 RIVER CODE                      RIVER MILE                       
DATE 4/24/18 SCORER REF COMMENTS SOZ7 (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 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

| TYPE                                                     | PERCENT   | TYPE                                                    | PERCENT   |
|----------------------------------------------------------|-----------|---------------------------------------------------------|-----------|
| <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 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]     | <u>5</u>  | <input type="checkbox"/> CLAY or HARDPAN [0 pt]         |           |
| <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]        | <u>20</u> | <input type="checkbox"/> MUCK [0 pts]                   |           |
| <input checked="" type="checkbox"/> SAND (<2 mm) [6 pts] | <u>35</u> | <input type="checkbox"/> ARTIFICIAL [3 pts]             |           |

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 5

(A) 9

(B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI  
Metric  
Points

Substrate  
Max = 40

14

A + B

Pool Depth  
Max = 30

25

Bankfull  
Width  
Max=30

5

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 8" 6" 4"

MAXIMUM POOL DEPTH (centimeters):

20

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 (> 9' 7" - 4' 8") [20 pts] |                                                                     |

COMMENTS 1.5' 1' 1'

AVERAGE BANKFULL WIDTH (meters)

03

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 type="checkbox"/>            | <input 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 (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: Salt Lick Creek (Little Salt Creek) Distance from Evaluated Stream 0.25mi  
☐ 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: Lick Twp

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 4/24/18 Quantity: 0.08in

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) :

35

SITE NAME/LOCATION ACP - Hopper to Lick 138

5003

SITE NUMBER

RIVER BASIN

Scioto River

DRAINAGE AREA (mi<sup>2</sup>)

0.27

LENGTH OF STREAM REACH (ft) 83

LAT. 39.084470

LONG. 82.622057

RIVER CODE

RIVER MILE

DATE 7/13/2017

SCORER KLV

COMMENTS

5003 (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  
☐  
☐  
☐  
☐  
☐  
☒  
☐

BLDR SLABS [16 pts]

BOULDER (>256 mm) [16 pts]

BEDROCK [16 pt]

COBBLE (65-256 mm) [12 pts]

GRAVEL (2-64 mm) [9 pts]

SAND (<2 mm) [6 pts]

PERCENT

20

TYPE

☒

☐

☐

☐

☐

☐

☐

SILT [3 pt]

LEAF PACK/WOODY DEBRIS [3 pts]

FINE DETRITUS [3 pts]

CLAY or HARDPAN [0 pt]

MUCK [0 pts]

ARTIFICIAL [3 pts]

PERCENT

10

10

10

10

10

10

10

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):

☐  
☐  
☐

> 30 centimeters [20 pts]

> 22.5 - 30 cm [30 pts]

> 10 - 22.5 cm [25 pts]

☒  
☐  
☐

> 5 cm - 10 cm [15 pts]

< 5 cm [5 pts]

NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10cm

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

☐  
☐  
☐

> 4.0 meters (> 13') [30 pts]

> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]

> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]

☐  
☒  
☐

> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]

≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

2'

HHEI  
Metric  
Points

Substrate  
Max = 40

15

A + B

Pool Depth  
Max = 30

15

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)

☐ ☐

Wide >10m

☐ ☐

Moderate 5-10m

☒ ☒

Narrow <5m

☐ ☐

None

COMMENTS

L R

☐ ☐

(Most Predominant per Bank)

☐ ☐

Mature Forest, Wetland

☒ ☒

Immature Forest, Shrub or Old

☒ ☒

Field

☐ ☐

Residential, Park, New Field

☐ ☐

Fenced Pasture

L R

☐ ☐

Conservation Tillage

☐ ☐

Urban or Industrial

☐ ☐

Open Pasture, Row

☐ ☐

Crop

☐ ☐

Mining or Construction

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

☐

Stream Flowing

☐

Subsurface flow with isolated pools (Interstitial)

☐

Moist Channel, isolated pools, no flow (Intermittent)

☐

Dry channel, no water (Ephemeral)

COMMENTS

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

☐

None

☐

0.5

☒

1.0

☐

1.5

☐

2.0

☐

2.5

☐

3.0

☐

>3

**STREAM GRADIENT ESTIMATE**

☐

Flat (0.5 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 0.10 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): 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**

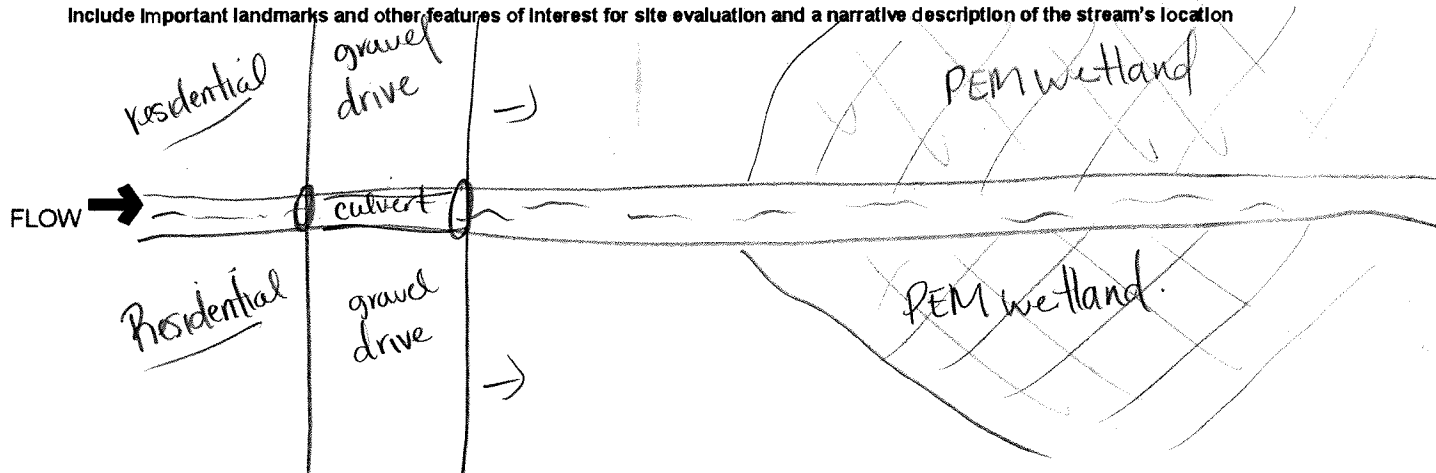
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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) :

24

SITE NAME/LOCATION ATP-Hepner-Lick 138

SO30

SITE NUMBER

RIVER BASIN

Scioto River

DRAINAGE AREA (mi<sup>2</sup>)

0.07 sq. mi

LENGTH OF STREAM REACH (ft) 360

LAT. 39.044321025

LONG. -82.10852298

RIVER CODE

RIVER MILE

DATE 7/10/2017

SCORER KLV

COMMENTS

SO30 (EPA)

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

☐

☐

☐

☐

☐

☒

☐

BLDR SLABS [16 pts]

BOULDER (>256 mm) [16 pts]

BEDROCK [16 pt]

COBBLE (65-256 mm) [12 pts]

GRAVEL (2-64 mm) [9 pts]

SAND (<2 mm) [6 pts]

PERCENT

20

TYPE

☒

☐

☐

☐

☐

☐

☐

SILT [3 pt]

LEAF PACK/WOODY DEBRIS [3 pts]

FINE DETRITUS [3 pts]

CLAY or HARDPAN [0 pt]

MUCK [0 pts]

ARTIFICIAL [3 pts]

PERCENT

80

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:

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

☐

☐

☐

☐

> 30 centimeters [20 pts]

> 22.5 - 30 cm [30 pts]

> 10 - 22.5 cm [25 pts]

☐

☒

☐

☐

> 5 cm - 10 cm [15 pts]

< 5 cm [5 pts]

NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

4cm

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

☐

☐

☐

☐

> 4.0 meters (> 13') [30 pts]

> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]

> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]

☐

☒

☐

☐

> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]

≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

3'

HHEI  
Metric  
Points

Substrate

Max = 40

14

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**

L R

☐

☐

(Per Bank)

Wide >10m

☐

☐

Moderate 5-10m

☒

☒

Narrow <5m

☐

☐

None

COMMENTS

**FLOODPLAIN QUALITY**

L R

☐

☐

(Most Predominant per Bank)

Mature Forest, Wetland

☐

☐

Immature Forest, Shrub or Old

☒

☒

Field

☐

☐

Residential, Park, New Field

Fenced Pasture

L R

☐

☐

Conservation Tillage

☒

☒

Urban or Industrial

☐

☐

Open Pasture, Row

Crop

☐

☐

Mining or Construction

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

☐

☐

Stream Flowing

Subsurface flow with isolated pools (Interstitial)

☒

☐

Moist Channel, isolated pools, no flow (Intermittent)

Dry channel, no water (Ephemeral)

COMMENTS

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

☐

☐

None

0.5

☐

☐

1.0

1.5

☒

☐

2.0

2.5

☐

☐

3.0

>3

**STREAM GRADIENT ESTIMATE**

☐

Flat (0.5 ft/100 ft)

☒

Flat to Moderate

☐

Moderate (2 ft/100 ft)

☐

Moderate to Severe

☐

Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Little Sat Creek Distance from Evaluated Stream 0.83 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: Lick Twp.

**MISCELLANEOUS**

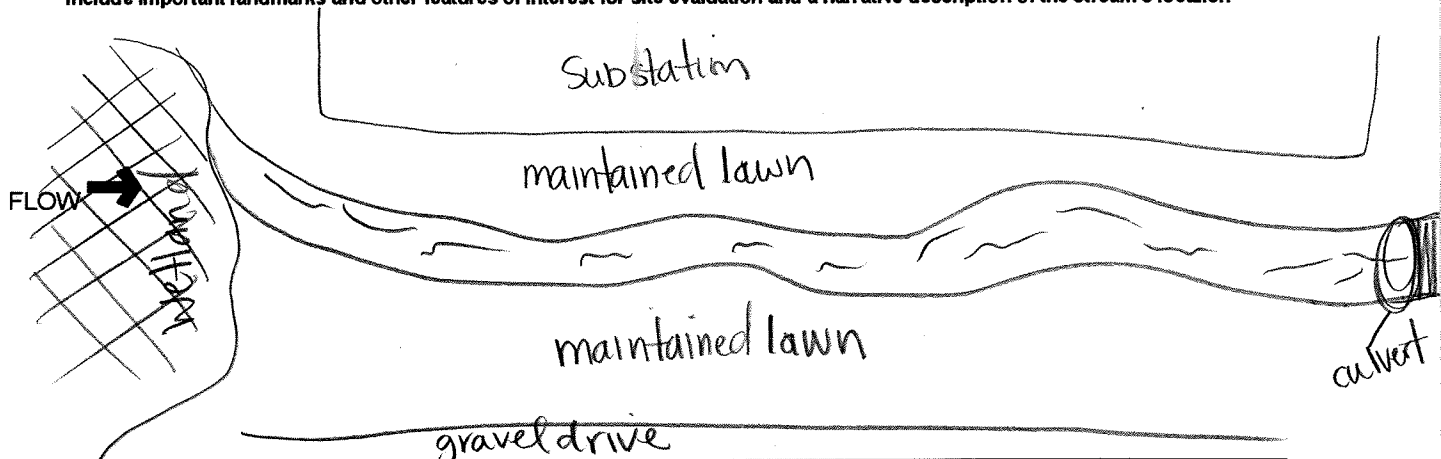
Base Flow Conditions? (Y/N): Y Date of last precipitation: 7/10/2017 Quantity: 4.25"  
Photograph Information: \_\_\_\_\_  
Elevated Turbidity? (Y/N): N Canopy (% open): 100%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
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) :

49

SITE NAME/LOCATION Heppner - Creek

SO31

SITE NUMBER

RIVER BASIN Scioto River

DRAINAGE AREA (mi<sup>2</sup>) 10.0

LENGTH OF STREAM REACH (ft) 78'

LAT. 39.043936 LONG. 82.608099

RIVER CODE

RIVER MILE

DATE 4/24/18 SCORER LEE

COMMENTS SO31 (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 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

| TYPE                                                 | PERCENT   | TYPE                                                   | PERCENT   |
|------------------------------------------------------|-----------|--------------------------------------------------------|-----------|
| <input type="checkbox"/> BLDR SLABS [16 pts]         |           | <input checked="" type="checkbox"/> SILT [3 pt]        | <u>35</u> |
| <input type="checkbox"/> BOULDER (>256 mm) [16 pts]  |           | <input type="checkbox"/> LEAF PACKWOODY DEBRIS [3 pts] | <u>5</u>  |
| <input type="checkbox"/> BEDROCK [16 pt]             |           | <input type="checkbox"/> FINE DETRITUS [3 pts]         |           |
| <input type="checkbox"/> COBBLE (65-256 mm) [12 pts] | <u>5</u>  | <input type="checkbox"/> CLAY or HARDPAN [0 pt]        |           |
| <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]    | <u>10</u> | <input checked="" type="checkbox"/> MUCK [0 pts]       | <u>35</u> |
| <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 5

(A) 3

(B) 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

## HHEI Metric Points

Substrate  
Max = 40

9

A + B

Pool Depth  
Max = 30

25

Bankfull  
Width  
Max=30

15

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 4" 2" 2.5"

MAXIMUM POOL DEPTH (centimeters):

0.16

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 (> 9' 7" - 4' 8") [20 pts] |                                                                                |

COMMENTS 3' 3.5' 4'

AVERAGE BANKFULL WIDTH (meters)

1.1

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 type="checkbox"/>            | <input type="checkbox"/>            | Narrow <5m     |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | None           |

COMMENTS

### FLOODPLAIN QUALITY

| L                        | R                        | (Most Predominant per Bank)         |
|--------------------------|--------------------------|-------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | Mature Forest, Wetland              |
| <input type="checkbox"/> | <input type="checkbox"/> | Immature Forest, Shrub or Old Field |
| <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input checked="" 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 (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 checked="" type="checkbox"/> None | <input type="checkbox"/> 1.0 | <input type="checkbox"/> 2.0 | <input type="checkbox"/> 3.0 |
| <input type="checkbox"/> 0.5             | <input type="checkbox"/> 1.5 | <input type="checkbox"/> 2.5 | <input type="checkbox"/> >3  |

## STREAM GRADIENT ESTIMATE

☒ 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: Salt Lick Creek (Little Salt Creek) Distance from Evaluated Stream 0.25 mi  
☐ 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: Lick Twp

**MISCELLANEOUS**

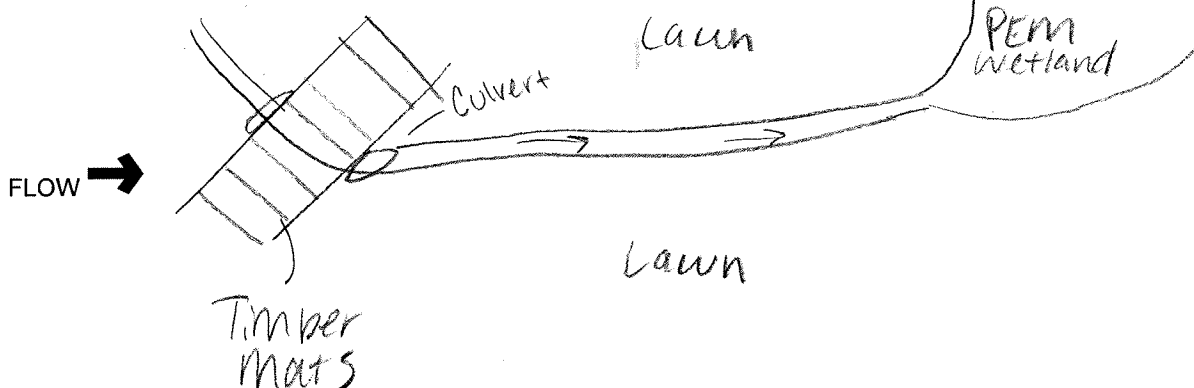
Base Flow Conditions? (Y/N): Y Date of last precipitation: 4/24/18 Quantity: 0.08 in  
Photograph Information: \_\_\_\_\_  
Elevated Turbidity? (Y/N): N Canopy (% open): 100  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
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





Stream & Location: S029- ATP Hopper to Lick RM: --- Date: 7/10/17S04-KLV-002 (LPER) Scorers Full Name & Affiliation: KLV GAI Consultants  
River Code: --- STORET #: --- Lat./ Long.: 39.0457 182.6084 Office verified location ☐  
(NAD 83 - decimal)1] **SUBSTRATE** Check ONLY Two substrate TYPE BOXES;  
estimate % or note every type present

Check ONE (Or 2 &amp; average)

| BEST TYPES                                                                                                     |             | OTHER TYPES                                  |             | ORIGIN                                                       |                                          | QUALITY                                            |                                                                |
|----------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------|-------------|--------------------------------------------------------------|------------------------------------------|----------------------------------------------------|----------------------------------------------------------------|
|                                                                                                                | POOL RIFFLE |                                              | POOL RIFFLE |                                                              |                                          |                                                    |                                                                |
| <input type="checkbox"/> BLDR/SLABS [10]                                                                       | <u>---</u>  | <input type="checkbox"/> HARDPAN [4]         | <u>---</u>  | <input type="checkbox"/> LIMESTONE [1]                       | <input type="checkbox"/> HEAVY [-2]      | <input checked="" type="checkbox"/> MODERATE [-1]  | SILT<br>EMBEDDEDNESS<br>Substrate<br><b>7</b><br>Maximum<br>20 |
| <input type="checkbox"/> BOULDER [9]                                                                           | <u>---</u>  | <input type="checkbox"/> DETRITUS [3]        | <u>10</u>   | <input type="checkbox"/> TILLS [1]                           | <input type="checkbox"/> WETLANDS [0]    | <input type="checkbox"/> NORMAL [0]                |                                                                |
| <input type="checkbox"/> COBBLE [8]                                                                            | <u>10</u>   | <input type="checkbox"/> MUCK [2]            | <u>---</u>  | <input type="checkbox"/> HARDPAN [0]                         | <input type="checkbox"/> SANDSTONE [0]   | <input type="checkbox"/> FREE [1]                  |                                                                |
| <input checked="" type="checkbox"/> GRAVEL [7]                                                                 | <u>25</u>   | <input checked="" type="checkbox"/> SILT [2] | <u>35</u>   | <input checked="" type="checkbox"/> RIP/RAP [0]              | <input type="checkbox"/> LACUSTURINE [0] | <input checked="" type="checkbox"/> EXTENSIVE [-2] |                                                                |
| <input type="checkbox"/> SAND [6]                                                                              | <u>20</u>   | <input type="checkbox"/> ARTIFICIAL [0]      | <u>---</u>  | <input type="checkbox"/> SHALE [-1]                          | <input type="checkbox"/> COAL FINES [-2] | <input checked="" type="checkbox"/> MODERATE [-1]  |                                                                |
| <input type="checkbox"/> BEDROCK [5]                                                                           | <u>---</u>  |                                              |             |                                                              |                                          | <input type="checkbox"/> NORMAL [0]                |                                                                |
| NUMBER OF BEST TYPES: <input type="checkbox"/> 4 or more [2] <input checked="" type="checkbox"/> 3 or less [0] |             |                                              |             | (Score natural substrates; ignore sludge from point-sources) |                                          |                                                    |                                                                |

Comments

2] **INSTREAM COVER** Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

|                                       |                           | AMOUNT                            |                                                       |
|---------------------------------------|---------------------------|-----------------------------------|-------------------------------------------------------|
|                                       |                           |                                   | Check ONE (Or 2 & average)                            |
| <u>1</u> UNDERCUT BANKS [1]           | <u>0</u> POOLS > 70cm [2] | <u>0</u> OXBOWS, BACKWATERS [1]   | <input type="checkbox"/> EXTENSIVE >75% [11]          |
| <u>1</u> OVERHANGING VEGETATION [1]   | <u>0</u> ROOTWADS [1]     | <u>0</u> AQUATIC MACROPHYTES [1]  | <input type="checkbox"/> MODERATE 25-75% [7]          |
| <u>0</u> SHALLOWS (IN SLOW WATER) [1] | <u>0</u> BOULDERS [1]     | <u>0</u> LOGS OR WOODY DEBRIS [1] | <input checked="" type="checkbox"/> SPARSE 5-<25% [3] |
| <u>0</u> ROOTMATS [1]                 |                           |                                   | <input type="checkbox"/> NEARLY ABSENT <5% [1]        |

Comments

Cover  
Maximum  
20  
**5**3] **CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

| SINUOSITY                                        | DEVELOPMENT                                  | CHANNELIZATION                                     | STABILITY                                        |
|--------------------------------------------------|----------------------------------------------|----------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> HIGH [4]                | <input type="checkbox"/> EXCELLENT [7]       | <input checked="" type="checkbox"/> NONE [6]       | <input type="checkbox"/> HIGH [3]                |
| <input checked="" type="checkbox"/> MODERATE [3] | <input type="checkbox"/> GOOD [5]            | <input type="checkbox"/> RECOVERED [4]             | <input checked="" type="checkbox"/> MODERATE [2] |
| <input type="checkbox"/> LOW [2]                 | <input checked="" type="checkbox"/> FAIR [3] | <input type="checkbox"/> RECOVERING [3]            | <input type="checkbox"/> LOW [1]                 |
| <input type="checkbox"/> NONE [1]                | <input type="checkbox"/> POOR [1]            | <input type="checkbox"/> RECENT OR NO RECOVERY [1] |                                                  |

Comments

Channel  
Maximum  
20  
**14**4] **BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

| River right looking downstream                   |                                                         | RIPARIAN WIDTH                                                |                                                    | FLOOD PLAIN QUALITY |  |
|--------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------|---------------------|--|
|                                                  |                                                         |                                                               |                                                    |                     |  |
| <u>1</u> EROSION                                 | <u>1</u> WIDE > 50m [4]                                 | <u>1</u> FOREST, SWAMP [3]                                    | <u>1</u> CONSERVATION TILLAGE [1]                  |                     |  |
| <input type="checkbox"/> NONE / LITTLE [3]       | <input checked="" type="checkbox"/> MODERATE 10-50m [3] | <input type="checkbox"/> SHRUB OR OLD FIELD [2]               | <input type="checkbox"/> URBAN OR INDUSTRIAL [0]   |                     |  |
| <input checked="" type="checkbox"/> MODERATE [2] | <input type="checkbox"/> NARROW 5-10m [2]               | <input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]     | <input type="checkbox"/> MINING / CONSTRUCTION [0] |                     |  |
| <input type="checkbox"/> HEAVY / SEVERE [1]      | <input type="checkbox"/> VERY NARROW < 5m [1]           | <input type="checkbox"/> FENCED PASTURE [1]                   |                                                    |                     |  |
|                                                  | <input type="checkbox"/> NONE [0]                       | <input checked="" type="checkbox"/> OPEN PASTURE, ROWCROP [0] |                                                    |                     |  |

Indicate predominant land use(s) past 100m riparian.

Riparian  
Maximum  
10  
**7**5] **POOL / GLIDE AND RIFFLE / RUN QUALITY**

| MAXIMUM DEPTH                                    | CHANNEL WIDTH                                                     | CURRENT VELOCITY                             |
|--------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------|
| Check ONE (ONLY!)                                | Check ONE (Or 2 & average)                                        | Check ALL that apply                         |
| <input type="checkbox"/> > 1m [6]                | <input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]            | <input type="checkbox"/> TORRENTIAL [-1]     |
| <input type="checkbox"/> 0.7-1m [4]              | <input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1] | <input checked="" type="checkbox"/> SLOW [1] |
| <input type="checkbox"/> 0.4-0.7m [2]            | <input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [0]            | <input type="checkbox"/> VERY FAST [1]       |
| <input checked="" type="checkbox"/> 0.2-0.4m [1] |                                                                   | <input type="checkbox"/> FAST [1]            |
| <input type="checkbox"/> < 0.2m [0]              |                                                                   | <input type="checkbox"/> MODERATE [1]        |
|                                                  |                                                                   | <input type="checkbox"/> INTERSTITIAL [-1]   |
|                                                  |                                                                   | <input type="checkbox"/> INTERMITTENT [-2]   |
|                                                  |                                                                   | <input type="checkbox"/> EDDIES [1]          |

Indicate for reach - pools and riffles.

Pool / Current  
Maximum  
12  
**3**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

☐ NO RIFFLE [metric=0]

| RIFFLE DEPTH                                              | RUN DEPTH                                              | RIFFLE / RUN SUBSTRATE                                                   | RIFFLE / RUN EMBEDDEDNESS                        |
|-----------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> BEST AREAS > 10cm [2]            | <input type="checkbox"/> MAXIMUM > 50cm [2]            | <input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]              | <input type="checkbox"/> NONE [2]                |
| <input checked="" type="checkbox"/> BEST AREAS 5-10cm [1] | <input checked="" type="checkbox"/> MAXIMUM < 50cm [1] | <input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1] | <input type="checkbox"/> LOW [1]                 |
| <input type="checkbox"/> BEST AREAS < 5cm [metric=0]      |                                                        | <input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]          | <input checked="" type="checkbox"/> MODERATE [0] |
|                                                           |                                                        |                                                                          | <input type="checkbox"/> EXTENSIVE [-1]          |

Riffle / Run  
Maximum  
8  
**3**6] **GRADIENT** (ft/mi) 2.4 mi<sup>2</sup>  
DRAINAGE AREA (mi<sup>2</sup>)  
☒ VERY LOW - LOW [2-4]  
☐ MODERATE [6-10]  
☐ HIGH - VERY HIGH [10-6]%POOL: 20 %GLIDE: 40  
%RUN: 30 %RIFFLE: 10Gradient  
Maximum  
10  
**4**

A) SAMPLED REACH

Check ALL that apply

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

METHOD

- ☐ BOAT ☐ HIGH ☐ 1st--sample pass-- 2nd
- ☐ WADE ☐ UP ☐
- ☐ L. LINE ☐ NORMAL ☐
- ☐ OTHER ☐ LOW ☐

STAGE

DISTANCE

- ☐ DRY ☐

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

CLARITY

- ☐ < 20 cm
- ☐ 20--40 cm
- ☐ 40--70 cm
- ☐ > 70 cm/ CTB
- ☐ SECCHI DEPTH

B) AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOS/ISSOS/OUTFALLS

D) MAINTENANCE

Circle some & COMMENT

- ☐ PUBLIC / PRIVATE / BOTH / NA
- ☐ ACTIVE / HISTORIC / BOTH / NA
- ☐ YOUNG-SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BED/LOAD-STABLE
- ☐ ARMoured / SLUMPS
- ☐ ISLANDS / SCoured
- ☐ IMPOUNDED / DESICCATED
- ☐ FLOOD CONTROL / DRAINAGE

E) ISSUES

- ☐ WWTP / CSO / NPDES / INDUSTRY
- ☐ HARDENED / URBAN / DIRT&GRIME
- ☐ CONTAMINATED / LANDFILL
- ☐ BMPs-CONSTRUCTION-SEDIMENT
- ☐ LOGGING / IRRIGATION / COOLING
- ☐ BANK / EROSION / SURFACE
- ☐ FALSE BANK / MANURE / LAGOON
- ☐ WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ☐ ACID / MINE / QUARRY / FLOW
- ☐ NATURAL / WETLAND / STAGNANT
- ☐ PARK / GOLF / LAWN / HOME
- ☐ ATMOSPHERE / DATA PAUCITY

F) MEASUREMENTS

- ☐  $\bar{x}$  width
- ☐  $\bar{x}$  depth
- ☐ max. depth
- ☐  $\bar{x}$  bankfull width
- ☐ bankfull  $\bar{x}$  depth
- ☐ W/D ratio
- ☐ bankfull max. depth
- ☐ floodprone  $\bar{x}^2$  width
- ☐ entrench. ratio

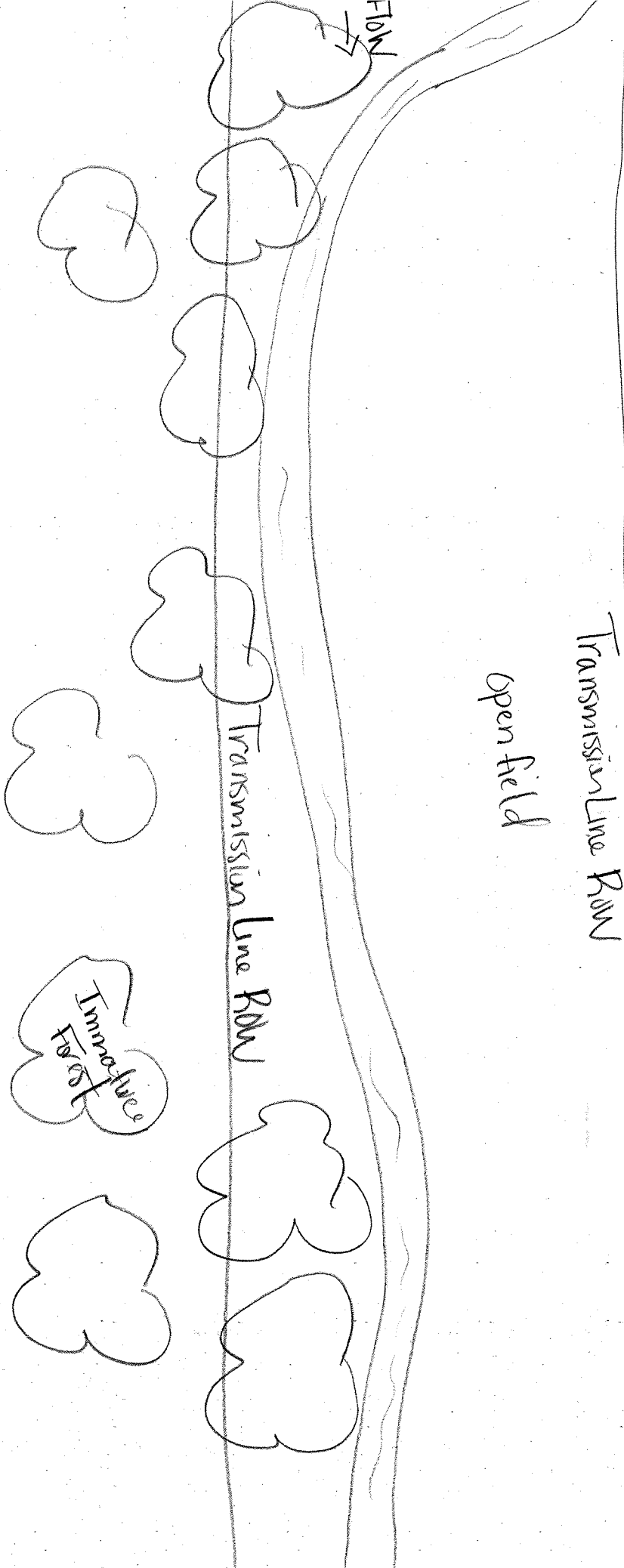
Legacy Tree:

- ☐ > 85% - OPEN
- ☐ 55% - < 85%
- ☒ 30% - < 55%
- ☐ 10% - < 30%
- ☐ < 10% - CLOSED

C) RECREATION

- ☐ AREA
- ☐ DEPTH
- ☐ POOL: ☐ > 100ft<sup>2</sup> ☐ > 3ft

Stream Drawing:



**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**8/13/2019 3:33:22 PM**

**in**

**Case No(s). 19-1487-EL-BLN**

Summary: Letter of Notification Letter of Notification for Adjustment to Heppner Switch- Lick  
138 kV Transmission Line Project. electronically filed by Tanner Wolfram on behalf of AEP  
Ohio Transmission Company, Inc.