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December 4, 2017

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

Re: PUCO Case No. 17-0806-EL-BLN
In the Matter of the Letter of Notification for the
Hepner Station Project

Dear Chairman Haque,

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

A copy of this filing will also be submitted to the executive director or the executive director’s designee. A copy will be provided to the Board Staff, including an electronic copy.

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

Respectfully submitted,

/s/ Christen Blend

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

cc: Jon Pawley, OPSB Staff

LETTER OF NOTIFICATION FOR Heppner Station Project



PUCO Case No. 17-0806-EL-BLN

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

Submitted by:
AEP Ohio Transmission Company, Inc.

December 4, 2017

LETTER OF NOTIFICATION FOR HEPNER STATION PROJECT

December 4, 2017

LETTER OF NOTIFICATION

AEP Ohio Transmission Company, Inc.'s Heppner Station Project

4906-6-05

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

4906-6-05(B) General Information

B(1) Project Description

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

AEP Ohio Transco has identified the need to construct the Heppner Station Project (the "Project") in Coal Township, Jackson County, Ohio. The Project consists of constructing a new switch station that will accept a third transmission source into the Lick-Ross 69 kilovolt ("kV") circuit from the 138/69 kV transformer at the proposed Rhodes Substation. The station is being constructed as a three (3) -circuit breaker ring bus configuration. This configuration is very reliable, as no outages to any of the three (3) transmission lines are required to perform circuit breaker maintenance.

The Project will be constructed on a property currently owned by the Pearl Jenkins Revocable Trust Successor by Lorrie Perry located along Prices Switch Road between OH-93 and Orville Brown Road. The location of the property (the "Project Area") is shown on Figure 1.1 in Appendix A. The property to be sub-divided for the purchase by AEP Ohio Transco is an open/scrub-shrub lot comprising approximately 40 acres in size. The portion of this lot to be purchased by AEP Ohio Transco is approximately 5.0 acres in size. Figures 1.2 and 1.3 in Appendix A show the general location of the proposed Heppner Station within the Project Area.

The Project meets the requirements for a Letter of Notification ("LON") because it is within the types of projects defined by Item (3) of *Appendix A* to O.A.C. 4906-1-01, *Application Requirement Matrix For Electric Power Transmission Lines*:

(3) Constructing a new electric power transmission substation.

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B(2) Statement of Need

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

The Heppner Station is being established to accept the third transmission source into the Lick-Ross 69 kV circuit from the 138/69 kV transformer at the proposed Rhodes Substation. This station will operate as a transmission hub for Jackson County, providing more flexibility for the electrical system in the area by enabling automatic switching between the three (3) available transmission sources depending on system conditions. This project has been submitted to PJM as a baseline project under PJM reference number b2885.3

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.

Figures 1.2, 1.3, and 1.4 in Appendix A show the location of the Project in relation to other existing AEP Ohio Transco transmission lines.

B(4) Alternatives Considered

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

A total of three (3) sites were considered for the Project, each of which are discussed in detail below.

Alternative 1 is also located along the existing Lick-Ross 69 kV line, approximately 500 feet north of Prices Switch Road. This alternative would require the purchase of a 5.0-acre lot from a 37.1-acre parcel of land. The closest residences to Alternative 1 are approximately 1,000 feet to the southeast and 1,000 feet to the southwest. This alternative would utilize part of an existing access road coming off Prices Switch Road. Current land use is successional herbaceous and scrub-shrub habitat within a previously disturbed property, with deciduous forested areas to the north and east. One scrub-shrub wetland and one intermittent stream were identified immediately adjacent to Alternative 1. Minimal tree clearing would be required. This alternative would be constructed along a gentle side slope, which should not require excessive grading.

Alternative 2 is located approximately 200 feet south of the existing Lick-Ross 69 kV line and approximately 300 feet north of Prices Switch Road. This alternative would require the purchase of a 5.0-acre lot from a 37.1-acre parcel of land. The closest residence to Alternative 2 is approximately 400 feet to the south. This alternative would require the shortest access road coming off Prices Switch Road. Current

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land use is successional herbaceous and scrub-shrub habitat within a previously disturbed property, with deciduous forested areas to the east and south. While no ecological constraints were identified for this alternative, it would require more extensive tree clearing along Prices Switch Road and additional transmission lines from the Lick-Ross 69 kV line. This alternative would be constructed along a steep side slope, which would require excessive grading.

Alternative 3 is located along the existing Lick-Ross 69 kV line, approximately 1,200 feet southwest of Eisnaugle Hollow Road and 2,000 feet north of Prices Switch Road. This alternative would require the purchase of a 5.0-acre lot from an 83.1-acre parcel of land. The closest residence to Alternative 3 is approximately 1,000 feet to the northeast. This alternative would require a lengthy access road coming off Eisnaugle Hollow Road to the northeast or Prices Switch Road to the south. Current land use is open herbaceous with deciduous forested areas to the east, west, and south. One NWI-mapped wetland and one USGS 7.5-minute mapped intermittent stream were identified to the south. Tree clearing, if required, would be minimal. This alternative would be constructed on a narrow ridge top, which may require excessive grading.

After a comparison of all three (3) sites, Alternative 1 was chosen as the proposed site for the Project due to its close proximity to the existing Lick-Ross 69 kV line and a reduced potential for engineering constraints. Additionally, Alternative 1 is among the furthest from residences at approximately 1,000 feet to the nearest residence. This site will also utilize part of an existing access road.

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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 Project will be located on property currently owned by Pearl Jenkins Revocable Trust Successor by Lorrie Perry, approximately 5.0 acres of which will be purchased by AEP Ohio Transco. AEP Ohio Transco informs affected property owners and tenants about its projects through several different mediums. Within seven (7) days after filing this LON, AEP Ohio Transco will issue a public notice in a newspaper of general circulation in the Project Area. The notice will comply with all requirements under O.A.C. 4906-6-08(A)(1)-(6). Further, AEP Ohio Transco mailed a letter, via first class mail, to affected landowners, tenants, contiguous owners, and any other landowner AEP Ohio Transco approached for an easement necessary for the construction, operation, or maintenance of the facility. The letter complies with all the requirements of O.A.C. Section 4906-6-08(B). AEP Ohio Transco also maintains a website (<http://aeptransmission.com/ohio/>) which provides the public access to an electronic copy of this LON and the public notice for this LON. A paper copy of the LON will be served to Jackson County Board of Commissioners, the Jackson County Engineer, Jackson County Soil and Water Conservation District, Lick Township Board of Trustees, City of Jackson Mayor Randy Heath, and City of Jackson Councilman Eric Brown concurrently with submittal to OPSB. A paper copy of the LON will be provided to the Jackson City Library. Lastly, AEP Ohio Transco retains ROW land agents who discuss project timelines, construction, and restoration activities with affected owners and tenants

B(6) Construction Schedule

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

AEP Ohio Transco anticipates construction of the Project will begin in March 2018, and the in-service date (completion date) of the Project will be approximately August 2018.

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 1.1 included in Appendix A identifies the location of the Project Area on a United States Geological Survey 1:24,000 quadrangle map. Figure 1.2 in Appendix A is an aerial map of the Project Area. To visit the Project from Columbus, take US-23 S toward Circleville for approximately 40 miles. Continue onto US-35 E/US-50 E toward Jackson/Athens for approximately 25 miles, take the exit for OH-93 and turn left. After 0.7-mile, turn left onto Prices Switch Road and the proposed Heppner Station entrance will be on the right side of Prices Switch Road after approximately 0.6 mile. The approximate address of the proposed Heppner Station is 1234 Prices Switch Road, Jackson, Ohio 45640 at latitude 39.085555, longitude -82.631111.

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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. Construction of the new Heppner Station will occur on property currently owned by Pearl Jenkins Revocable Trust Successor by Lorrie Perry (approximately 40 acres; Parcel ID: B020010014700). AEP Ohio Transco will obtain approximately 5.0 acres of the 40-acre parcel for construction of the station and access roads. No other property acquisition or easements are required to construct and operate the Heppner Switch Station.

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 proposed Heppner Station will be constructed on a 5.0-acre portion of a 40-acre property to be purchased by AEP Ohio Transco from the Pearl Jenkins Revocable Trust Successor by Lorrie Perry. The equipment and facilities described below will be installed within the fenced area of the proposed Heppner Station facility.

- The Project will construct a new 138 kV ring bus, reconfigurable for a future breaker-and-a-half build-out on the Owner's provided property site.
- The new station will be constructed "in the clear" and will be designed according to the Owner's Standard Drawings. The station will occupy just over 2.0 acres and will include a perimeter fence of approximately 330 feet by 180 feet. Two (2) 20-foot drive gates will be installed on the east side of the station.
- The station is located in a 90 mile per hour ("mph"), non-coastal, non-corrosive environment.
- The Contractor's bid document will include 30 feet by 30 feet ground grid spacing.
- It is anticipated approximately 250 feet of precast cable trench will be required.
- The 138 kV yard will be rated for 40kA, 3000A, 550kV BIL. All tubular bus will be 5.0-inch IPS aluminum tubing. All series jumpers for the 138 kV yard will be dual 2000KCM AAC.
- C phase of Bus #1 will be the source for the primary station service, and C phase of Bus #2 will be the source for the backup station service.

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- The 69 kV Lick to Ross line will be split and routed into two (2) terminals on the ring. The third terminal will have an auto transformer with a circuit breaker on the secondary side and there will be space on the primary side for a future circuit switcher.

Breakers

There will be three (3) 138 kV breakers at the switch station. These breakers will be SF6 (sulfur hexafluoride) gas insulated, dead tank breakers.

Electrical Assembly

The station is designed as a 138 kV ring bus, reconfigurable for future breaker-and-a-half design, with a 138/69 kV 90 MVA transformer.

Bus Arrangement and Structures

138 kV steel structures will be designed using structural tubing, folded plate tapered tubular, and/or wide flange structures. There will be two (2) bays 138 kV H-Frame dead-end expandable structures. All materials shall be hot-dip galvanized, with their respective ASTM standards. The high bus throughout the yard will be approximately 35 feet in height.

Transformers

There will be no transformers in the Heppner Switch Station.

Control Building

A single 15.5-foot by 27-foot DICM will be installed in the yard.

Transmission Line

Three (3) single-circuit 138 kV lines will connect to the Project. The Heppner to Lick line will be 4.1 miles of single circuit 138 kV transmission line which utilizes single pole self-supporting deadend structures and 1033 kCM ACSR conductor. Heppner to Rhodes will be a 4.6-mile single circuit 138 kV transmission line which utilizes single-pole self-supporting deadend structures and 1033 kCM ACSR conductor. Pine Ridge to Heppner will be a 3.7-mile single circuit 138 kV transmission line which utilizes self-supporting deadend structures and 1033 kCM ACSR conductor. Each of these lines are proposed lines and will be filed with the OPSB under separate cover.

AEP Ohio Transco will also construct adjacent storm water facilities and access roads associated with the Project.

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. The discussion shall include:

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

Not applicable. The proposed Project is an electric transmission switch station and there are no occupied residences or institutions located within 100 feet of the Project.

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

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

Not applicable. The proposed Project is an electric transmission switch station and there are no occupied residences or institutions located within 100 feet of the Project.

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

The estimated capital cost of the project.

The estimated capital cost of the Project, comprised of applicable tangible and capital costs, is approximately \$7,500,000.

B(10) Social and Economic Impacts

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

B(10)(a) Provide a brief, general description of land use within the vicinity of the proposed project, including a list of municipalities, townships, and counties affected.

The Project is located within Coal Township, Jackson County, Ohio. Figure 1.3 in Appendix A shows U.S. Department of Agriculture ("USDA") land use categories for the Project Area. According to this map, land uses in the Project Area consist of outdated deciduous forest (currently mixed scrub/shrub), deciduous forest, hay/pasture, herbaceous land, and developed open space. One (1) palustrine scrub-shrub (PSS) wetland was delineated and one (1) intermittent stream was identified at the southwestern boundary of the Project study area. Impacts to these aquatic resources are not proposed as part of the Project. Based upon land contours, the proposed location of the access road to the station was revised following the completion of the ecological field work. AEP Ohio Transco's real estate group is working to supplement the property to include this proposed access road. AEP Ohio Transco will provide the OPSB with supplemental environmental data once additional ecological field surveys are completed.

The Project Area is located within Coal Township, Jackson County, Ohio. Rural land use surrounds the Project as it is located north of the City of Jackson and State Route 35. The closest residence is located greater than 450 feet to the south of the proposed Heppner Station. No commercial or industrial buildings or complexes are present in the area immediately surrounding the Project.

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The Ohio Department of Natural Resources ("ODNR") Division of Wildlife ("DOW") Natural Heritage Program ("NHP") responded in a letter dated August 22, 2017 (Project ID 17-395) indicating that the Coalton Wildlife Area managed by the ODNR DOW is located within a one-mile radius of the Project Area. The Coalton Wildlife area is a 1,729-acre tract of land managed for public hunting and fishing. The Coalton Wildlife Area will not be affected by the Project. The United States Fish and Wildlife Service's ("USFWS") Columbus Ecological Services Office responded in an email dated June 2, 2017 (Project ID 03E15000-2017-TA-1328) indicating there are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the Project Area. Consultation with the ODNR NHP and USFWS is provided in Appendix C.

B(10)(b) Agricultural Land Information

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

The Project is not located within a registered agricultural district land, based on data received from the Jackson County Auditor's Office on October 20, 2017. Additionally, the Project Area does not contain any active agricultural row crop land (see Figure 1.3 in Appendix A and Figure 3 in Appendix C).

B(10)(c) Archaeological and Cultural Resources

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

In August 2017, AEP Ohio Transco's consultant completed a Phase I cultural resource investigation for the Project (see Appendix B).

The literature review conducted for the Project Area indicated there were mounds in its vicinity but none that are definitively within or adjacent to the Project Area. There are no previously recorded archaeological sites within a 1,000-foot radius of the center of the Project Area. One (1) previously recorded site, the Exline Cemetery, is located north of the Project Area. The Exline Cemetery will not be impacted by the planned Project.

The field investigations were conducted on approximately 8.6 acres. As mentioned above, based upon land contours, the proposed location of the access road to the station was revised after archaeology field work had been completed. However, this previously un-surveyed area is located in severely disturbed/sloped condition. Similarly, during the archaeological field reconnaissance it was determined that the majority of the Project Area had been severely altered and disturbed. Inspection of the surrounding terrain was conducted and there were no buildings older than 50 years within view of the Project and no archeological deposits were identified. In consideration of the project type, the nature of the terrain, and what is within view of the Project, it was the opinion of the consultant the proposed

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switch station will not impact or affect any historic properties or landmarks. No further archaeological work is considered to be necessary for this Project. For more information, see the Phase I Cultural Resources Management Investigations report included in Appendix B. Once completed, a revised Phase I Cultural Resource Management Investigations report will be submitted to OPSB to include the results of the additional area required for the new proposed portion of the access road.

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

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

A Notice of Intent ("NOI") will be filed with the Ohio Environmental Protection Agency ("OEPA") for authorization of construction storm water discharges under General Permit OHC0000004, and AEP Ohio Transco will implement and maintain best management practices, as outlined in the project-specific Storm Water Pollution Prevention Plan, to minimize erosion and control sediment to protect surface water quality during storm events. The Project will not impact any streams or wetlands, and no tree clearing will be required in any forested wetlands (see Appendix C). Therefore, a permit from the U.S. Army Corps of Engineers ("USACE") will not be required for the Project.

The Project is not located within a Federal Emergency Management Agency ("FEMA") 100-year floodplain area. Therefore, no floodplain permitting is required for the Project. There are no other known local, state or federal requirements that must be met prior to commencement of the Project.

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

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

The USFWS *Federally Listed Species by Ohio Counties October 2015* (available at www.fws.gov/midwest/ohio/pdf/OhioTEListByCountyOct2015.pdf) document was reviewed to determine the threatened and endangered species known to occur in Jackson County. This USFWS publication listed the following species as occurring within Jackson County: Indiana bat (*Myotis sodalis*; federally endangered), northern long-eared bat (*Myotis septentrionalis*; federally threatened), and running buffalo clover (*Trifolium stoloniferum*; federally endangered). As part of the ecological study completed for the Project, a coordination letter was submitted to the USFWS' Ohio Ecological Services Field Office seeking technical assistance on the Project for potential impacts to threatened or endangered species. The June 2, 2017 response letter from the USFWS' Columbus Ecological Services Office (see Appendix C) indicated the proposed Project is within the range of the Indiana bat and northern long-eared bat in Ohio, but if tree

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clearing occurs between October 1 and March 31, and no caves or abandoned mines will be disturbed, the USFWS does not anticipate the Project having any adverse effects to these species or any other federally-listed endangered, threatened, proposed, or candidate species. The proposed Project may require minimal tree clearing. Any tree clearing performed associated with the Project will occur between October 1 and March 31.

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

A coordination letter was submitted to the ODNR DOW NHP in May 2017, seeking an environmental review of the proposed Project for potential impacts on state-listed threatened or endangered species. The August 22, 2017 response letter from ODNR DOW NHP (see Appendix C) indicated the Project is within the range of the Indiana bat, a state-endangered species, as well as a federally endangered species. If tree clearing occurs between October 1 and March 31, the ODNR DOW does not anticipate the Project having any adverse effects to the Indiana bat. The Project is also located within the range of the following state-listed species: little spectaclecase (*Villosa lienosa*), Ohio lamprey (*Ichthyomyzon bdellium*), lake chubsucker (*Erimyzon sucetta*), timber rattlesnake (*Crotalus horridus horridus*), Kirtland's snake (*Clonophis kirtlandii*), mud salamander (*Pseudotriton montanus*), and black bear (*Ursus americanus*). However, based on the location of the Project, no in-water work is proposed in a perennial stream of sufficient size, type of habitat at the Project site, type of work proposed, and/or species mobility, the Project is not likely to impact these species per the ODNR DOW.

B(10)(f) Areas of Ecological Concern

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

The ODNR DOW NHP responded in a letter dated August 22, 2017 (Project ID 17-395) indicating the Coalton Wildlife Area managed by the ODNR DOW is located within a one (1)-mile radius of the Project Area. The Coalton Wildlife area is a 1,729-acre tract of land managed for public hunting and fishing. The Coalton Wildlife area will not be impacted by the Project. No state forests or parks will be impacted by the Project. Correspondence received from the USFWS indicated that there are no federal wilderness areas, wildlife refuges or designated critical in the Project vicinity.

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

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The FEMA Flood Insurance Rate Map (FIRM) was consulted to identify any floodplains/flood hazard areas that have been mapped within the Project Area (specifically, map number 39079C0134K). Based on this mapping, no mapped FEMA floodplains are located in the Project Area. Therefore, a floodplain permit will not be required for this Project.

A review of the National Wetlands Inventory ("NWI") database indicated there are no NWI-mapped wetlands identified within the Project Area. Wetland and stream delineation field surveys were completed within the Project Area by AEP Ohio Transco's consultant in May and August, 2017. The results of the wetland and stream delineations are presented in the Ecological Survey Report included in Appendix C. One (1) palustrine scrub-shrub wetland and one (1) intermittent stream were identified 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.

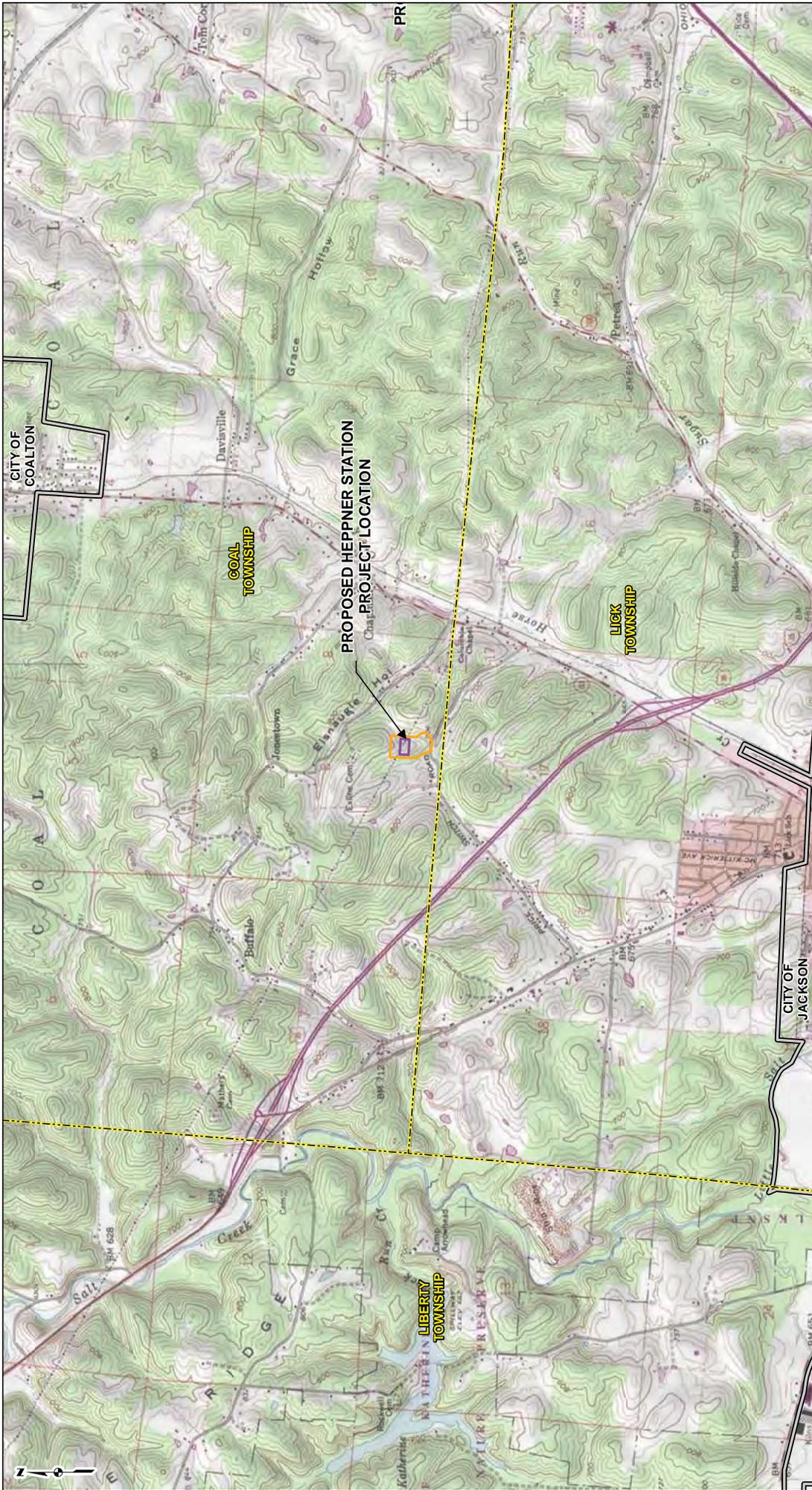
To the best of AEP Ohio Transco's knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.

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Appendix A Project Maps
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Appendix A Project Maps

Figures 1.1, 1.2, 1.3, and 1.4



PROJECT LOCATION MAP

HEPPNER STATION PROJECT

HEPPNER STATION PROJECT

AEP OHIO TRANSMISSION COMPANY, INC.

DATE: 12/1/2017
 APPROVED: ARW

DRAWN BY: AKW
 CHECKED: MDO

LEGEND

- TOWNSHIP BOUNDARY
- PROPOSED HEPPNER STATION
- PROJECT AREA
- CITY BOUNDARY

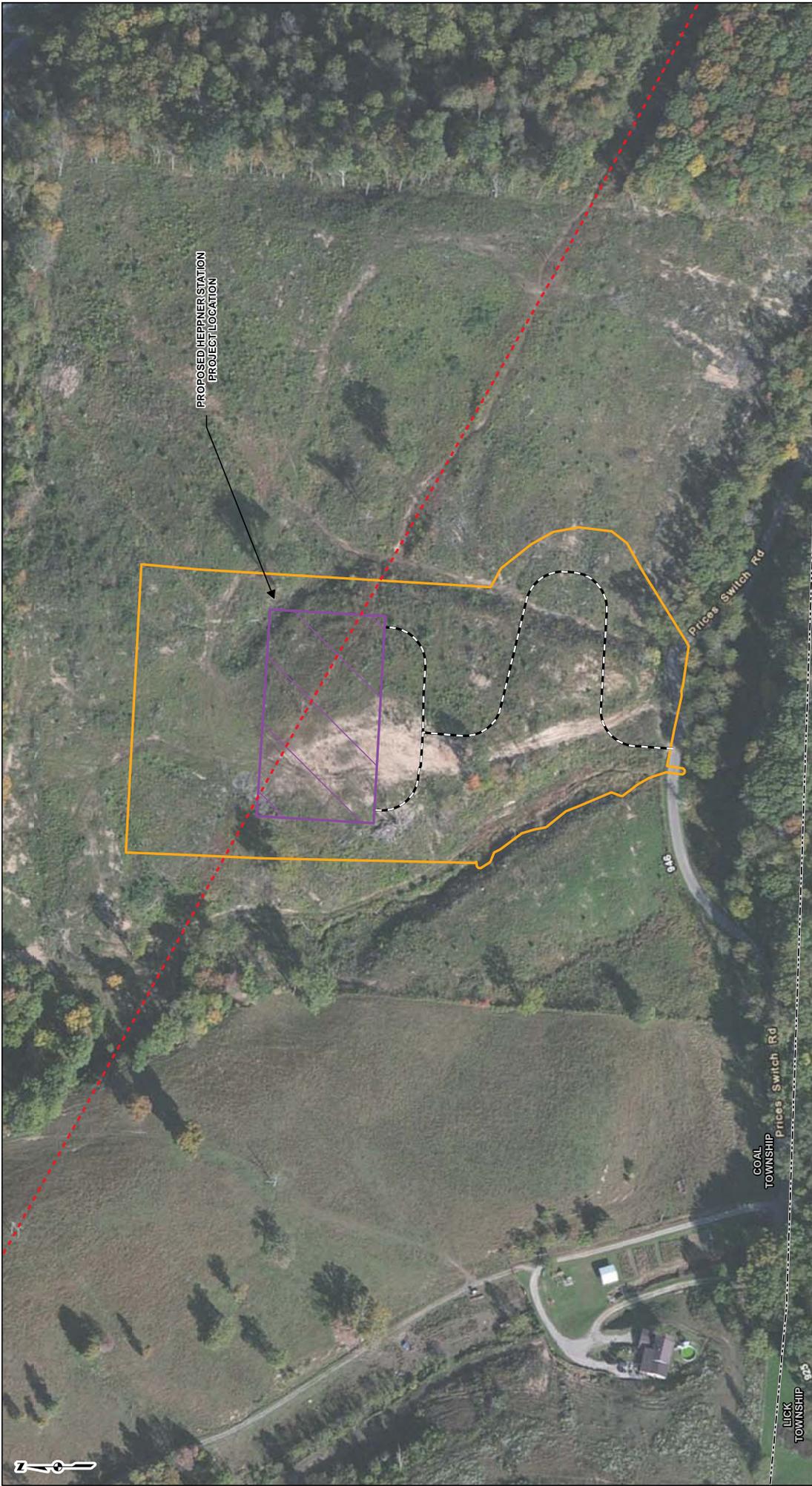
0 1,000 2,000 4,000 Feet

PROJECT LOCATION

JACKSON COUNTY, OHIO

REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO. OBTAINED THROUGH ESRI USA LOCAL MAPS NATIONAL GEOGRAPHIC TOPO AND USGS. ACCESSED 12/2017.

Z:\Energy\2017C\170352.00 - AEP Ohio Projects\GIS\MXD\Heppner_Sub\N\ON\Project_Location_2017_12_01.mxd



PROPOSED HEPPNER STATION
PROJECT LOCATION



PROJECT LOCATION
LICK TOWNSHIP
COAL TOWNSHIP
PRICES SWITCH RD
046

REFERENCES: ESRI WORLD IMAGERY, MICROSOFT TRANSPORTATION, ESRI, DELORME, HERE, MAPMYINDIA TOMTOM, © OPENSTREETMAP CONTRIBUTORS, AND THE GARMIN ONLINE MAPS AND DATA THROUGH ESRI. GARMIN ONLINE MAPS, ACCESSIBLE 12/2017.

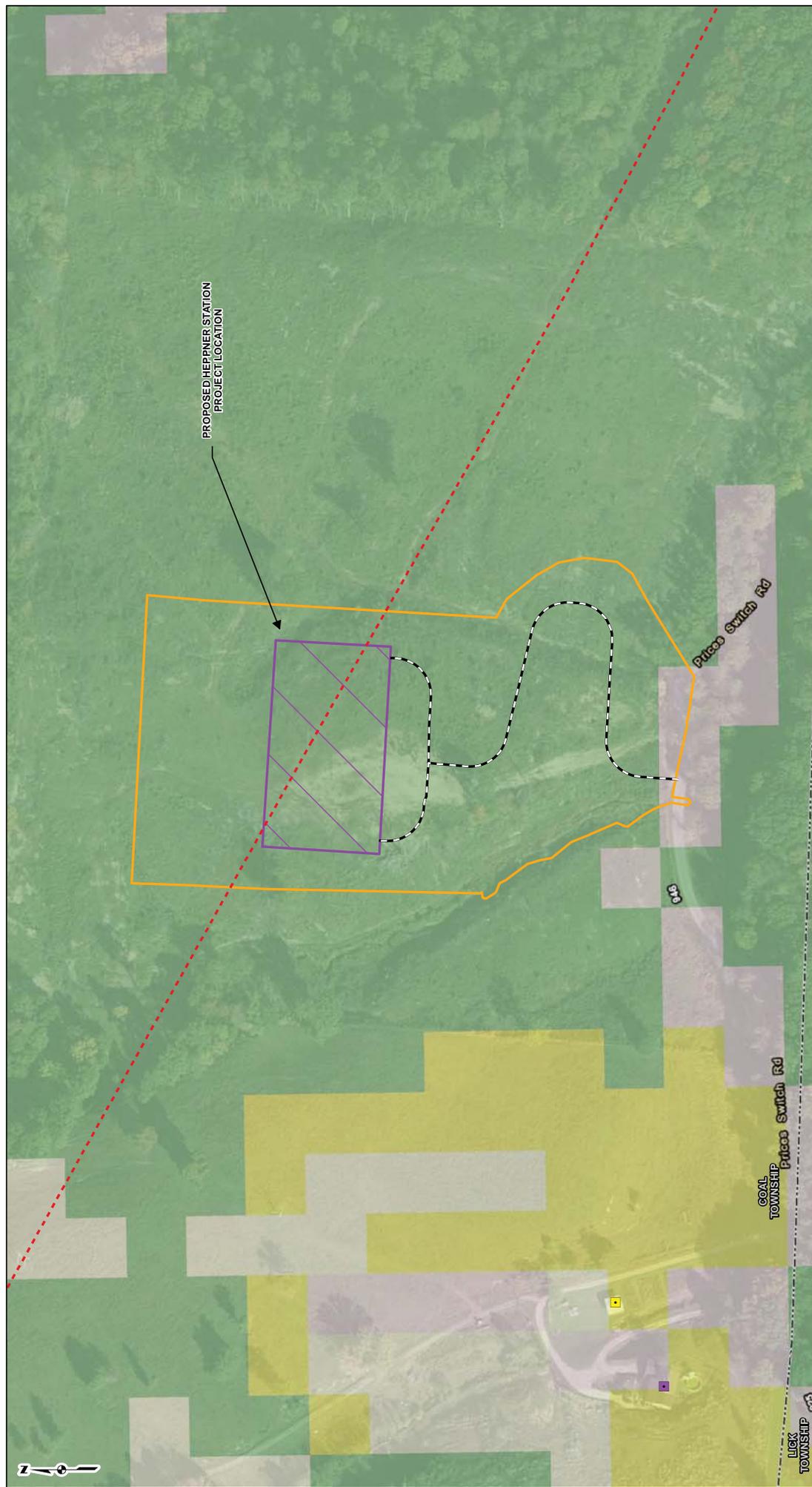
- LEGEND**
- EXISTING LICK - ROSS 69 kV LINE
 - PROPOSED ACCESS ROAD
 - ▭ PROJECT AREA
 - ▨ PROPOSED HEPPNER STATION
 - - - TOWNSHIP BOUNDARY



**FIGURE 1.2
PROJECT LAYOUT MAP**

HEPPNER STATION PROJECT
AEP OHIO TRANSMISSION COMPANY, INC.

DRAWN BY: AKW DATE: 12/1/2017
CHECKED: MDO APPROVED: ARW



PROPOSED HEPPNER STATION
PROJECT LOCATION

FIGURE 1.3
LAND USE MAP

HEPPNER STATION PROJECT
AEP OHIO TRANSMISSION COMPANY, INC.

DRAWN BY: AKW DATE: 12/1/2017
CHECKED: MDO APPROVED: ARW

LEGEND

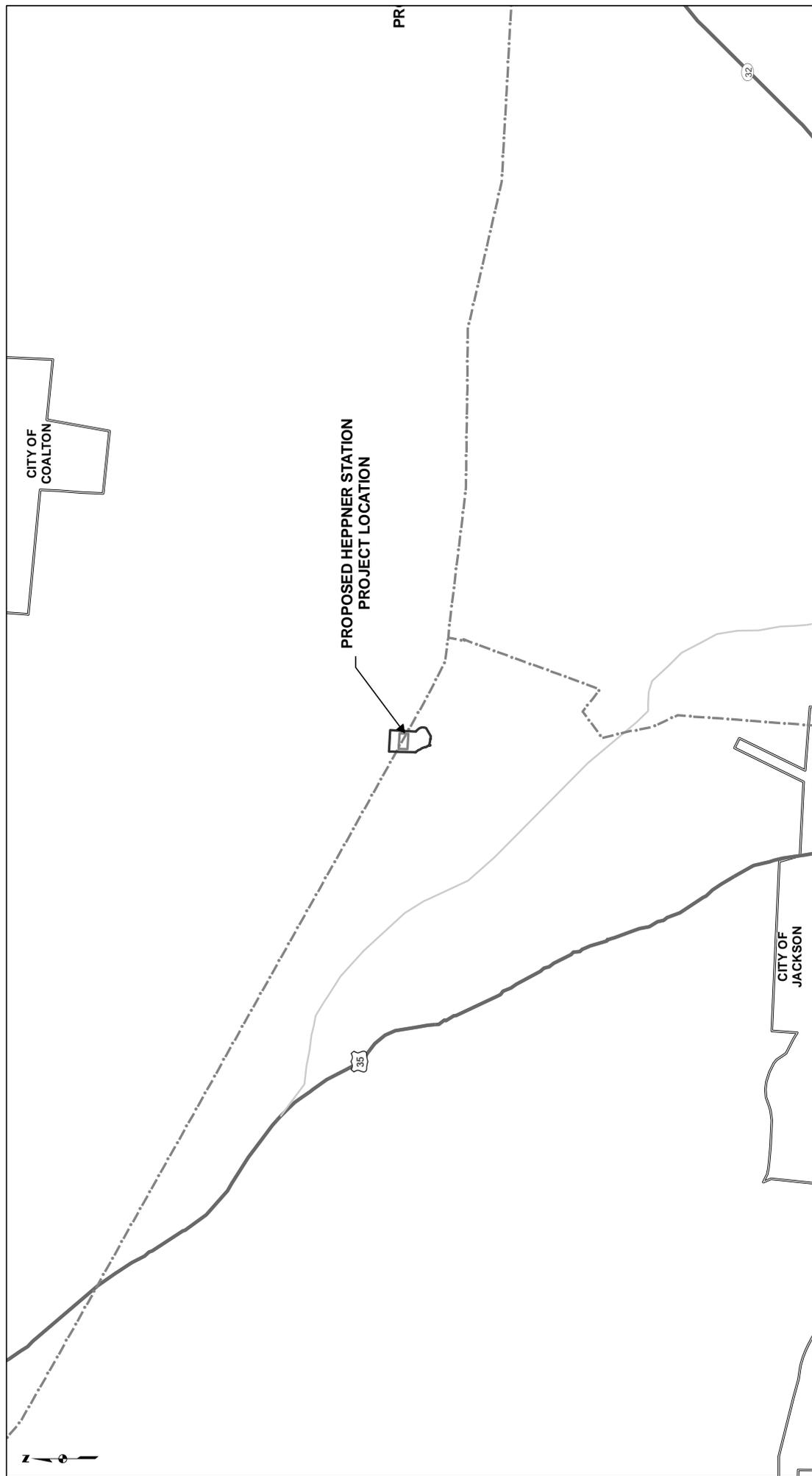
PROPOSED ACCESS ROAD	HERBACELOUS
PROPOSED HEPPNER STATION	HAY/PASTURE
PROJECT AREA	DEVELOPED, OPEN SPACE
TOWNSHIP BOUNDARY	DECIDUOUS FOREST
RESIDENCE	ABANDONED MINE
OTHER	
EXISTING LICK - ROSS 69 KV LINE	

0 75 150 300
Feet

REFERENCE: ESRI WORLD IMAGERY, MICROSOFT TRANSPORTATION, ESRI, DELORME, HERE, MAPYNDIA, TOMTOM, © OPENSTREETMAP CONTRIBUTORS, AND THE NATIONAL LAND COVER DATABASE (NLCD), 2017, OH AGRISONLINE, ACCESSED 12/20/17. NLCD POLYGONS: NATIONAL LAND COVER DATABASE (NLCD), 2017, OH AGRISONLINE, ACCESSED 12/20/17. OHIO DEPARTMENT OF NATURAL RESOURCES, 2016.

PROJECT LOCATION

JACKSON COUNTY, OHIO



PROJECT LOCATION

JACKSON COUNTY, OHIO

REFERENCES: MAJOR HIGHWAYS - STREET MAP 9.3. ESR1, 2006, ACCESSED 12/2017.

LEGEND

- EXISTING TRANSMISSION LINE
- MAJOR HIGHWAYS
- - - LIMITED ACCESS
- HIGHWAY
- PROJECT AREA
- ▣ PROPOSED HEPPNER STATION
- CITY BOUNDARY

0 1,000 2,000 4,000 Feet

FIGURE 1.4
CONCEPT MAP

HEPPNER STATION PROJECT
AEP OHIO TRANSMISSION COMPANY, INC.

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LETTER OF NOTIFICATION FOR HEPPNER STATION PROJECT

Appendix B Phase I Cultural Resource Investigations Report
December 4, 2017

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**Phase I Cultural Resource Management Investigations for the
Proposed 3.5 ha (8.6 ac) Heppner Switch Project in
Coal Township, Jackson County, Ohio**

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August 11, 2017

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**Phase I Cultural Resource Management Investigations for the
Proposed 3.5 ha (8.6 ac) Heppner Switch Project in
Coal Township, Jackson County, Ohio**

By

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August 11, 2017

Abstract

In August 2017, Weller & Associates, Inc. conducted a Phase I Cultural Resource Management Investigations for the Proposed 3.5 ha (8.6 ac) Heppner Switch Project in Coal Township, Jackson County, Ohio. These investigations were completed for American Electric Power for submittal to the lead agency, the Ohio Power Siting Board. A cultural resources management survey was deemed necessary to identify any sites or properties and to determine if they are significant similar to what would be eligible for the National Register of Historic Places (NRHP). Some of the area has been extensively disturbed in places from former construction activities. This document includes the archaeological and history/architectural component of these investigations. These investigations were completed in accordance with the *Archaeology Guidelines* established by the Ohio State Historic Preservation Office [SHPO] (1994).

The planned project involves the construction of a new electric switch station (Heppner Switch). The project area is about 3.5 ha (8.6 ac) in size and is to the north of the City of Jackson, west of State Route 93, and northeast of US 35. Access to the area will be from Prices Switch Road (Township Highway 253), which is immediately south of the project area. The surrounding setting is comprised of rural, open landscape, and dense forestation with some areas that have been timbered. The terrain is rolling to rugged within the area sloping to the north/northeast. Much of the surrounding area is comprised of dense forestation. The project area contains a sloping ridge and some steep settings.

The literature review that was conducted for this project indicated that there are mounds in its vicinity, but none that are definitively within or immediately adjacent to it (Mills 1914). The Exline Cemetery is located to the north of the project area. Otherwise, there are no sites or surveys involved in the project or its study area.

The investigations did not result in the identification of cultural materials. The project area is either sloped or severely disturbed. Inspection of the surrounding terrain was conducted and there are no buildings older than 50 years within view of the project. It is the opinion of Weller that no historic properties or landmarks will be affected by the project. No further work is recommended for this undertaking.

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Introduction

In August 2017, Weller & Associates, Inc. (Weller) conducted a Phase I Cultural Resource Management Investigations for the Proposed 3.5 ha (8.6 ac) Heppner Switch Project in Coal Township, Jackson County, Ohio (Figures 1-3). A cultural resources management (CRM) survey was appropriate to identify any sites or properties that might be regarded as historically significant and to evaluate the effects of this project on such properties. Significance is relative to evaluation that is consistent with the National Register of Historic Places (NRHP) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 [36 CFR 800]). AEP Ohio Transco requested the survey pursuant to Ohio Power Siting Board (OPSB) regulations; OPSB is the lead agency. This report summarizes the results of the fieldwork and literature review. The report format and design is similar to that established in *Archaeology Guidelines* (Ohio State Historic Preservation Office [SHPO] 1994).

The field reconnaissance for this project was conducted on August 10th, 2017. A literature review was completed on August 1, 2017 by Chad Porter. Joshua D. Engle and Brittany Vance completed the field investigations. The report was prepared by Ryan Weller with Chad Porter and Alex Thomas completing the figures.

Project Description

The planned project involves the construction of a new electric switch station. The project area is about 3.5 ha (8.6 ac) in size and is to the north of the City of Jackson, west of State Route 93, and northeast of US 35. The surrounding setting is comprised of rural, open landscape, and dense forestation. The terrain is rolling to rugged within the area sloping to the north/northeast. Much of the surrounding area is comprised of dense forestation. This report is focused on the archaeological aspect of the project. The history/architectural documentation was prepared as a combined report.

Environmental Setting

Climate

Jackson County, like all of Ohio, has a continental climate with hot and humid summers and cold winters. About 104 cm (41 in) of precipitation falls annually on the county with over half (55 percent) falling from April through September (United States Department of Agriculture, Soil Conservation Service [USDA, SCS] 1985).

Physiography, Relief, and Drainage

Jackson County is located within the unglaciated plateau of southeastern Ohio; however, the central part of the county has been affected by ancient lacustrine valley/lake deposition (Brockman 1998; Pavey et al. 1999). The project area and most of Jackson County is contained within the Ironton Plateau. This is described as “Moderately high relief (300’) dissected plateau; coarser grained coal-bearing rock sequences more common than in other regions of the Allegheny Plateau; common lacustrine clay-filled Teays Valley

remnants; elevation 515'-1060'' (Brockman 1998). The terrain through the surrounding region is generally rugged upland with narrow ridge tops and steep side slopes. The stream valleys tend to be entrenched; however, low terraces are present within the Kansan-age valley train. The area within and around the project area is a toe ridge that slopes to the south. The project area is drained by an unnamed tributary of Horse Creek, which drains into Little Salt Creek. These are part of the Salt Creek-Scioto River watershed.

Geology

The underlying bedrock of most of Jackson County is associated with Pennsylvanian-age formations. The bedrock in the extreme northwestern corner is Mississippian-age formation. The project is contained within an area of Pennsylvanian-age carbonate rocks (Brockman 1998).

Soils

The soils contained within the project area were reviewed. The project area is contained within the Wharton-Rarden Association. These soils are common through the rugged, upland settings and typically omitted from valley situations. There are three soil series types indicated in the project area with about 99 percent of the area being depicted as having a slope percentage that is greater than 15 percent (USDA, SCS 1985 (2017)). If the soils are an accurate reflection of the project area, little testing will be necessary and visual inspection will be the primary method of investigation/project documentation.

Table 1. Soils within the project area.

Symbol	Soil Type	Slope percentage	Landform
RmE	Rigley-Clymer association	Steep	Steeply sloped areas
WhD	Wharton silt loam	15-25	Side slopes
Omu1C1	Omulga silt loam	6-12	Ancient Terraces

Flora

There is or at least was great floral diversity in Ohio. This diversity is relative to the soils and the terrain that generally includes the till plain, lake plain, terminal glacial margins, and unglaciated plateau (Forsyth 1970). Three major glacial advances, including the Kansan, Illinoian, and Wisconsinan, have affected the landscape of Ohio. The effects of the Wisconsin glaciation are most pronounced and have affected more than half of the state (Pavey et al. 1999).

The least diverse part of Ohio extends in a belt from the northeast below the lake-affected areas through most of western Ohio (Gordon 1966). These areas are part of the late Wisconsin ground moraine and lateral end moraines. It is positioned between the lake plains region and the terminal glacial moraines. This area included broad forested areas of beech maple forests interspersed with mixed oak forests in elevated terrain or

where relief is greater (Forsyth 1970; Gordon 1966). Prairie environments such as those in Wyandot and Marion County areas would contain islands of forests, but were mostly expansive open terrain dominated by grasses.

The northwestern Ohio terrain is nearly flat because of ancient glacial lakes and glaciation, which affected the flora. However, the vegetation was more diverse than the till plain to the south and east because of the variety of factors that contributed to its terrain. Forests within the Black Swamp were generally comprised of elm/ash stands; however, dissected areas along drainages and drier, elevated areas from beach deposits would contain mixed forests of oak and hickory (Gordon 1966, 1969). There was little upland floral diversity in the lake plains (Black Swamp region) except for the occasional patches of oak and hickory. Floral variety was most evident in narrow sleeves along larger stream valleys where there is relief.

The most biological diversity in Ohio is contained within the Allegheny Plateau, which encompasses the southeastern two-thirds of the state (Sheaffer and Rose 1998). Because this area is higher and has drier conditions, it is dominated by mixed oak forests. Some locations within the central part of this area contain beech and mixed mesophytic forests. There are large patches of oak and sugar maple forests to the south of the terminal moraine from Richland to Mahoning County (Gordon 1966).

Southwestern Ohio from about Cincinnati to Bellefontaine east to the Scioto River historically contained a very diverse floral landscape. This is an area where moraines from three glacial episodes are prevalent (Pavey et al. 1999). Forests in this area include elm-ash swamp, beech, oak-sugar maple, mixed mesophytic, prairie grasslands, mixed oak, and bottomland hardwoods (Core 1966; Gordon 1966, 1969). These forest types are intermingled with prairies being limited to the northern limits of this area mostly in Clark and Madison Counties.

Generally, beech forests are the most common variety through Ohio and could be found in all regions. Oak and hickory forests dominated the southeastern Ohio terrain and were found with patchy frequency across most of northern Ohio. Areas that were formerly open prairies and grasslands are in glacial areas, but are still patchy. These are in the west central part of the state. Oak and sugar maple forests occur predominantly along the glacial terminal moraine. Elm-ash swamp forests are prevalent in glaciated areas including the northern and western parts of Ohio (Gordon 1966; Pavey et al. 1999).

Central Jackson County, including the project area, is generally within what is considered to be a mixed oak forest area (Gordon 1966).

Fauna

The upland forest zone offered a diversity of mammals to the prehistoric diet. This food source consisted of white-tailed deer, black bear, Eastern cottontail rabbit, opossum, a variety of squirrels, as well as other less economically important mammals. Several avian species were a part of the upland prehistoric diet as well (i.e. wild turkey, quail, ruffed grouse, passenger pigeon, etc.). The lowland zone offered significant

species as well. Raccoon, beaver, and muskrat were a few of the mammals, while wood duck and wild goose were the economically important birds. Fishes and shellfish were also an integral part of the prehistoric diet. Ohio muskellunge, yellow perch, white crappie, long nose gar, channel catfish, pike, and sturgeon were several of the fish, whereas, the Ohio naiad mollusc, butterfly's shell, long solid, common bullhead, knob rockshell, and cod shell were the major varieties of shellfish. Reptiles and amphibians, such as several varieties of snakes, frogs, and turtles, were also part of the prehistoric diet (Trautman 1981; Lafferty 1979; Mahr 1949).

Cultural Setting

The first inhabitants of Ohio were probably unable to enter this land until the ice sheets of the Wisconsin glacier melted around 14,000 B.C. Paleoindian sites are considered rare due to the age of the sites and the effects of land altering activities such as erosion. Such sites were mostly used temporarily and thus lack the accumulation of human occupational deposits that would have been created by frequent visitation. Paleoindian artifact assemblages are characteristic of transient hunter-gatherer foraging activity and subsistence patterns. In Ohio, major Paleoindian sites have been documented along large river systems and near flint outcrops in the Unglaciaded Plateau (Cunningham 1973). Otherwise, Paleoindian sites in the glaciaded portions of Ohio are encountered infrequently and are usually represented by isolated finds or open air scatters.

The Paleoindian period is characterized by tool kits and gear utilized in hunting Late Pleistocene megafauna and other herding animals including but not limited to short-faced bear, barren ground caribou, flat-headed peccary, bison, mastodon, giant beaver (Bamforth 1988; Brose 1994; McDonald 1994). Groups have been depicted as being mobile and nomadic (Tankersley 1989); artifacts include projectile points, multi-purpose unifacial tools, burins, graters, and spokeshaves (Tankersley 1994). The most diagnostic artifacts associated with this period are fluted points that exhibit a groove or channel positioned at the base to facilitate hafting. The projectiles dating from the late Paleoindian period generally lack this trait; however, the lance form of the blade is retained and is often distinctive from the following Early Archaic period (Justice 1987).

The Archaic period has been broken down into three sub-categories, including the Early, Middle, and Late Archaic. During the Early Archaic period (ca. 10,000-8000 B.P.), the environment was becoming increasingly arid as indicated by the canopy (Shane 1987). This period of dryness allowed for the exploitation of areas that were previously inaccessible or undesirable. The Early Archaic period does not diverge greatly from the Paleoindian regarding the type of settlement. Societies still appear to be largely mobile with reliance on herding animals (Fitting 1963). For these reasons, Early Archaic artifacts can be encountered in nearly all settings throughout Ohio. Tool diversity increased at this time including hafted knives that are often re-sharpened by the process of beveling the utilized blade edge and intense basal grinding (Justice 1987). There is a basic transition from lance-shaped points to those with blades that are triangular. Notching becomes a common hafting trait. Another characteristic trait occurring almost exclusively in the Early and Middle Archaic periods is basal bifurcation and large blade

serrations. Tool forms begin to vary more and may be a reflection of differential resource exploitation. Finished tools from this period can include bifacial knives, points, drills/perforators, utilized flakes, and scrapers.

The Middle Archaic period (8000-6000 B.P.) is poorly known or understood in archaeological contexts within Ohio. Some (e.g., Justice 1987) regard small bifurcate points as being indicative of this period. Ground stone artifacts become more prevalent at this time. Other hafted bifaces exhibit large side notches with squared bases, but this same trait can extend back to the Paleoindian period. The climate at this time is much like that of the modern era. Middle Archaic period subsistence tended to be associated with small patch foraging that involved a consistent need for mobility with a shift towards stream valleys (Stafford 1994). Sites encountered from this time period throughout most of Ohio tend to be lithic scatters or isolated finds. The initial appearance of regional traits may be apparent at this time.

The Late Archaic period in Ohio (ca 6000-3000 B.P.) diverges from the previous periods in many ways. Preferred locations within a regional setting appear to have been repeatedly occupied. The more intensive and repeated occupations often resulted in the creation of greater social and material culture complexity. The environment at this time is warmer and drier. Most elevated landforms in northeastern Ohio have yielded Archaic artifacts (Prufer and Long 1986: 7), and the same can be stated for the remainder of Ohio.

Various artifacts are diagnostic of the Late Archaic period. Often, burial goods provide evidence that there was some long-distance movement of materials, while lithic materials used in utilitarian assemblages are often from a local chert outcrop. There is increased variation in projectile point styles that may reflect regionalism. Slate was often used in the production of ornamental artifacts. Ground and polished stone artifacts reached a high level of development. This is evident in such artifacts as grooved axes, celts, bannerstones, and other slate artifacts.

It is during the Terminal Archaic period (ca 3500-2500 B.P.) that extensive and deep burials are encountered. Cultural regionalism within Ohio is evident in the presence of Crab Orchard (southwest), Glacial Kame (northern), and Meadowood (central to Northeastern). Along the Ohio River, intensive occupations have been placed within the Riverton phase. Pottery makes its first appearance during the Terminal Late Archaic.

The Early Woodland period (ca 3000-2100 B.P.) in Ohio is often associated with the Adena culture and the early mound builders (Dragoo 1976). Early and comparably simple geometric earthworks first appear with mounds more spread across the landscape. Pottery at this time is thick and tempered with grit, grog, or limestone; however, it becomes noticeably thinner towards the end of the period. There is increased emphasis on gathered plant resources, including maygrass, chenopodium, sunflower, and squash. Habitation sites have been documented that include structural evidence. Houses that were constructed during this period were circular, having a diameter of up to 18.3 m (Webb and Baby 1963) and often with paired posts (Cramer 1989). Artifacts dating from this period include leaf-shaped blades with parallel to lobate hafting elements, drilled

slate pieces, ground stone, thick pottery, and increased use of copper. Early Woodland artifacts can be recovered from every region of Ohio.

The Middle Woodland period (ca 2200-1600 B.P.) is often considered to be equivalent with the Hopewell culture. The largest earthworks in Ohio date from this period. There is dramatic increase in the appearance of exotic materials that appear most often in association with earthworks and burials. Artifacts representative of this period include thinner, grit-tempered pottery, dart-sized projectile points (Lowe Flared, Steuben, Snyders, and Chesser) [Justice 1987], exotic materials (mica, obsidian, and marine shell, etc.). The points are often thin, bifacially beveled, and have flat cross sections. There seems to have been a marked increase in the population as well as increased levels of social organization. Middle Woodland sites seem to reflect a seasonal exploitation of the environment. There is a notable increase in the amount of Eastern Agricultural Complex plant cultigens, including chenopodium, knotweed, sumpweed, and little barley. This seasonal exploitation may have followed a scheduled resource extraction year in which the populations moved camp several times per year, stopping at known resource extraction loci. Middle Woodland land use appears to center on the regions surrounding earthworks (Dancey 1992; Pacheco 1996); however, there is evidence of repeated occupation away from earthworks (Weller 2005a). Household structures at this time vary with many of them being squares with rounded corners (Weller 2005a). Exotic goods are often attributed to funerary activities associated with mounds and earthworks. Utilitarian items are more frequently encountered outside of funerary/ritual contexts. The artifact most diagnostic of this period is the bladelet, a prismatic and thin razor-like tool, and bladelet cores. Middle Woodland remains are more commonly recovered from central Ohio south and lacking from most areas in the northern and southeastern part of the state.

The Late Woodland period (ca A.D. 400-900) is distinct from the previous period in several ways. There appears to be a population increase and a more noticeable aggregation of groups into formative villages. The villages are often positioned along large streams, on terraces, and were likely seasonally occupied (Cowan 1987). This increased sedentism was due in part to a greater reliance on horticultural garden plots, much more so than in the preceding Middle Woodland period. The early Late Woodland groups were growing a wide variety of crop plants that are collectively referred to as the Eastern Agricultural Complex. These crops included maygrass, sunflower, and domesticated forms of goosefoot and sumpweed. This starch and protein diet was supplemented with wild plants and animals. Circa A.D. 800 to 1000, populations adopted maize agriculture, and around this same time, shell-tempered ceramics appear. Other technological innovations and changes during this period included the bow and arrow and changes in ceramic vessel forms.

The Late Prehistoric period (ca A.D. 1000-1550) is distinctive from former periods. The Cole complex (ca A.D. 1000-1300) has been identified in central and south central Ohio. Sites that have been used to define the Cole complex include the W.S. Cole (33DL11), Ufferman (33DL12), and Decco (33DL28) sites along the Olentangy; the Zencor Village site, located along the Scioto River in southern Franklin County; and the Voss Mound site (33FR52), located along the Big Darby Creek in southwestern Franklin

County. It has been suggested that this cultural manifestation developed out of the local Middle Woodland cultures and may have lasted to be contemporaneous with the Late Prehistoric period (Barkes 1982; Baby and Potter 1965; Potter 1966). Cole is a poorly defined cultural complex as its attributes are a piecemeal collection gathered from various sites. Some have suggested that it may be associated with the Fort Ancient period (Pratt and Bush 1981). Artifacts recovered from sites considered as Cole include plain and cordmarked pottery, triangular points, Raccoon Notched points, chipped slate discs, rectangular gorgets, and chipped stone celts. The vessels often have a globular form with highly variable attributes and rim treatment. There have been few structures encountered from this period, but those that have are typically rounded or circular (Pratt and Bush 1981; Weller 2005b).

Monongahela phase sites date to the Late Prehistoric to Contact period in eastern Ohio. Monongahela sites are typically located on high bottomlands near major streams, on saddles between hills, and on hilltops, sometimes a considerable distance from water sources. Most of these sites possessed an oval palisade, which surrounded circular house patterns. Burials of adults are usually flexed and burial goods are typically ornamental. A large variety of stone and bone tools are found associated with Monongahela sites. Monongahela pottery typically is plain or cordmarked with a rounded base and a gradually in-sloping shoulder area. Few Euro-American trade items have been found at Monongahela sites (Drooker 1997).

Protohistoric to Settlement

By the mid-1600s, French explorers traveled through the Ohio country as trappers, traders, and missionaries. They kept journals about their encounters and details of their travels. These journals are often the only resource historians have regarding the early occupants of seventeenth century Ohio. The earliest village encountered by the explorers in 1652 was a Tionontati village located along the banks of Lake Erie and the Maumee River. Around 1670, it is known that three Shawnee villages were located along the confluence of the Ohio River and the Little Miami River. Because of the Iroquois Wars, which continued from 1641-1701, explorers did not spend much time in the Ohio region, and little else is known about the natives of Ohio during the 1600s. Although the Native American tribes of Ohio may have been affected by the outcome of the Iroquois Wars, no battles occurred in Ohio (Tanner 1987).

French explorers traveled extensively through the Ohio region from 1720-1761. During these expeditions, the locations of many Native American villages were documented. In 1751, a Delaware village known as Maguck existed near present-day Chillicothe. In 1758, a Shawnee town known as 'Lower Shawnee 2' existed at the same location. The French also documented the locations of trading posts and forts, which were typically established along the banks of Lake Erie or the Ohio River (Tanner 1987).

While the French were establishing a claim to the Ohio country, many Native Americans were also entering new claims to the region. The Shawnee were being forced out of Pennsylvania because of English settlement along the eastern coast. The Shawnee

created a new headquarters at Shawnee Town, which was located at the mouth of the Scioto River. This headquarters served as a way to pull together many of the tribes which had been dispersed because of the Iroquois Wars (Tanner 1987).

Warfare was bound to break out as the British also began to stake claims in the Ohio region by the mid-1700s. The French and Indian War (1754-1760) affected many Ohio Native Americans; however, no battles were recorded in Ohio (Tanner 1987). Although the French and Indian War ended in 1760, the Native Americans continued to fight against the British explorers. In 1764, Colonel Henry Bouquet led a British troop from Fort Pitt, Pennsylvania to near Zanesville, Ohio.

In 1763, the Seven Years' War fought between France and Britain, also known as the French and Indian War ended with The Treaty of Paris. In this Peace of Paris, the French ceded their claims in the entire Ohio region to the British. When the American Revolution ended with the Second Treaty of Paris in 1783, the Americans gained the entire Ohio region from the British; however, they designated Ohio as Indian Territory. Native Americans were not to move south of the Ohio River but Americans were encouraged to head west into the newly acquired land to occupy and govern it (Tanner 1987).

By 1783, Native Americans had established fairly distinct boundaries throughout Ohio. The Shawnee tribes generally occupied southwest Ohio, while the Delaware tribes stayed in the eastern half of the state. Wyandot tribes were located in north-central Ohio, and Ottawa tribes were restricted to northeast Ohio. There was also a small band of Mingo tribes in eastern Ohio along the Ohio River, and there was a band of Mississauga tribes in northeastern Ohio along Lake Erie. The Shawnee people had several villages within Ross County along the Scioto River (Tanner 1987). Although warfare between tribes continued, it was not as intense as it had been in previous years. Conflicts were contained because boundaries and provisions had been created by earlier treaties.

In 1795, the Treaty of Greenville was signed as a result of the American forces defeat of the Native American forces at the Battle of Fallen Timbers. This allocated the northern portion of Ohio to the Native Americans, while the southern portion was opened for Euro-American settlement. Although most of the battles which led up to this treaty did not occur in Ohio, the outcome resulted in dramatic fluctuations in the Ohio region. The Greenville Treaty line was established, confining all Ohio Native Americans to northern Ohio, west of the Tuscarawas River (Tanner 1987).

Ohio Native Americans were again involved with the Americans and the British in the War of 1812. Unlike the previous wars, many battles were fought in the Ohio country during the War of 1812. By 1815, peace treaties began to be established between the Americans, British, and Native Americans. The Native Americans lost more and more of their territory in Ohio. By 1830, the Shawnee, Ottawa, Wyandot, and Seneca were the only tribes remaining in Ohio. These tribes were contained on reservations in northwest Ohio. By the middle 1800s, the last of the Ohio Native Americans signed treaties and were removed from the Ohio region.

Jackson County History

The major draw to the area that would become Jackson County was undeniably the salt licks that outcropped there. The Shawnee Indians knew of them as did the moundbuilding cultures before them. Daniel Boone and Jonathan Alder visited the salt works with their Indian captors in the 1770s and 1780s. Europeans knew of the salt there as evidenced by their placement on a map as early as 1755 (Howe 1888; Jones and Jenkins 1953; Morrow 1956; Williams 1900; Willard 1916).

With the secession of the Indian claims on the Ohio Territory in 1795, the land was properly owned by the Federal Government. When Washington County was established in 1788, most of the area of modern Jackson County fell into what was then called Lick Township. During this period, squatters at the licks controlled the area as a rowdy bunch of saltmakers. With the influx of legal settlement around the licks, beginning in 1795, an attempt to dispel these troublemakers became an obvious necessity for progress. A new county, with local law was the conclusion of the local landowners. They petitioned the state through Senator Robert Lucas, who had lived and worked at the licks, and the petition became law in 1816 (Howe 1888; Jones and Jenkins 1953; Morrow 1956; Williams 1900; Willard 1916). The time between saw little progress because of the lawlessness of the squatters at the salt mines. With little organization, there was little care for the benefit of the whole. John Knight built a grist mill about 1799, but no other commercial business existed in the region save the salt business which was run by crude individuals. There were legal farmers and squatting saltminers. One group of the salt renderers were well know counterfeiters as well, operating there until the time of county organization; then were forced out of Jackson, fleeing west (Willard 1916).

Some progress did take place at the settlement known as Poplar Row. The area's first two roads had been newly built in 1804 and a post office established the same year. The post office was named Salt Lick until it was changed in 1817 to Jackson Court House. That year, the village of Jackson was platted. Sometime around 1806, George L. Crookham taught the only school in the area, and in 1819, the Baptists built the first church. Under the organization of the county, all lands at the salt licks were gathered from Federal control to that of Jackson, and the sale of which to be opened up. The proceeds were specifically to be used for the erection of county buildings and schools (Howe 1888; Morrow 1956; Willard 1916).

As mining salt was the industry of the county, it was inevitable that the other raw materials of Jackson would also be discovered with the increasing population of the 1820s and 1830s. There was a great migration of Welsh who arrived in the 1820s. Coal outcropped and was used personally since the earliest occupation of the county. George Riegel opened the first coal mine in 1823. Iron was discovered in the 1830s and Rogers, Hurd, & Co. built the first furnace in Jackson County in 1836, the Jackson Furnace. Jackson's Iron industry would last almost as long as her coal. These industries, of course, were catapulted to the forefront of county significance with the addition of railroad

shipping, which began with the Scioto and Hocking Valley Railroad in 1853. Pit mining for coal originated here in 1861 (Morrow 1956; Willard 1916).

During the Civil War, Jackson was visited by Morgan's Raiders, but the skirmish was slight and little more than hoof prints were left to bear witness. One man was killed and a mill burnt, but as they passed through in the night, there was little resistance and then they were gone (Jones and Jenkins 1953; Willard 1916).

The towns of Wellston, Oak Hill, and Coalton were each established after the Civil War; Wellston in 1874, Oak Hill in 1880, and Coalton near that later date. Wellston became a city, but the other two remain villages. The rest of the county is rural (Howe 1888; Morrow 1956; Willard 1916).

By 1888, Jackson was the largest coal producing county in Ohio, but by 1907, the Wellston seam began to show exhaustion. As ever, mining continued, but in another way. Firebrick clay and cement manufacture gained in importance, subsidizing the recession of the county's coal industry. However nothing could replace it and the county slipped into decline. The population has changed very little over the past hundred years (Morrow 1956; Willard 1916).

Coal Township History

Coal was not one of the original five townships of Jackson county. Those included the townships of Bloomfield, Franklin, Lick, Madison and Milton. Later boundary adjustments which affected the county lines, included the establishment of Coal township in 1881 (Howe 1888). Population centers which became prominent within Coal include Wellston and Coalton. Established in 1876, Wellston is ten miles northeast of Jackson and is partially contained within Coal township. Named after its founder Henry Wells, the community was initially laid out in 1873 on land purchased from H.S. Bundy (Howe 1888). Coalton, located centrally within the township, was formally incorporated in 1876. Significant population numbers were reached by 1887, with some estimates at five thousand (Howe 1888; Willard 1916).

As the namesake of the township suggests, coal mining was an important function of these communities. Coal mining and the addition of the steel industry of nearby Jackson turned the region into an important industrial center. The Wellston coal seam became a major producer as one of four within Jackson county. With the introduction of railroads, coal shipped from the county had grown to beyond 300,000 tons by 1880 (Howe 1888).

Coal township no longer enjoys the economic benefit of major resource extraction activities. Largely rural, with Coalton as a small unincorporated community with under five hundred residents, Coal Township no longer contains its former economic prestige.

Research Design

The purpose of a Phase I survey is to locate and identify cultural resources that will be affected by the planned development. This includes archaeological deposits as well as architectural properties that are older than 50 years; however, the architectural component is in a separate report. Once these resources are identified and sampled, they are evaluated for their eligibility or potential eligibility to the NRHP. These investigations are directed to answer or address the following questions:

- 1) Did the literature review reveal anything that suggests the project area had been previously surveyed, and what is the relationship of previously recorded properties to the project area?
- 2) Are cultural resources likely to be identified in the project area?

These questions are addressed in the text that follows the literature review.

Archaeological Field Methods

The survey conducted within the project area was generally limited to subsurface testing methods and visual inspection. Surface collection was not possible due to the ground cover.

Shovel probe excavation. Shovel probes were excavated during these investigations to document the extent of the disturbances. These probes were excavated similarly to shovel test units or to the point that disturbance could be clearly determined. They typically have the dimensions of 50 cm on a side, but are not screened. They were excavated at 15-m intervals and to a depth of 15-20 cm or deep enough to establish lack of soil integrity.

Visual inspection. Locations where cultural resources were not expected, such as disturbed areas and wet areas were walked over and visually inspected. Surface exposed/disturbed areas were inspected. This method was used to verify the absence or likelihood of any cultural resources being located in these areas. This method was also utilized to document the general terrain and the surrounding area.

The application of the resulting field survey methods was documented in field notes, field maps, and project plan maps.

Curation

No artifacts 50 years of age or older were recovered during the investigations. Notes and maps affiliated with this project will be maintained at Weller & Associates, Inc. files.

Literature Review

The literature review study area is defined as a 305 m (1,000 ft) radius from the boundaries of the project. In conducting the literature review, the following resources were consulted at SHPO, at the Columbus Metropolitan Library, at the State Library of Ohio, and from various online resources:

- 1) *An Archeological Atlas of Ohio* (Mills 1914);
- 2) SHPO United States Geological Survey (USGS) 7.5' series topographic maps;
- 3) Ohio Archaeological Inventory (OAI) files;
- 4) Ohio Historic Inventory (OHI) files;
- 5) National Register of Historic Places (NRHP) files;
- 6) SHPO consensus Determinations of Eligibility (DOE) files;
- 7) SHPO CRM/contract archaeology files; and
- 8) Jackson County atlases, histories, historic USGS 15' series topographic map(s), and current USGS 7.5' series topographic map(s);
- 9) Online Genealogical and Cemetery Records.

A review of *An Archeological Atlas of Ohio* (Mills 1914) was conducted (Figure 4) and there are many sites/resources noted in Jackson County. There are three mounds indicated within or immediately adjacent to Section 8 of Coal Township; two of these mounds are indicated as being excavated. The project area is located in the southeastern part of Section 8. There does not appear to be any mounds indicated that involve the project area.

A review of the SHPO topographic maps indicated that there are no sites located in the project or its study area.

The Ohio Historic Inventory (OHI) files indicated that there are no previously recorded OHI filed in the study area or the project area.

A review of the NRHP files and determinations of eligibility files indicated that there are no resources within or adjacent the project area. There are no such resources located in the study area of the project area.

There have not been any professional surveys completed that intercept the project area.

Cartographic/atlas resources were reviewed for the project area. According to the *Atlas of Jackson County, Ohio* (Lake 1875) the project area was formerly within the northern part of Lick Township, which has since become Coal Township. At this time, the project area was owned by Jas. Newport; a residence and a coal bank are indicated with or near the project area. The USGS *1912 Oak Hill, Ohio 15 Minute Series (Topographic)* map indicates a building near the southeastern part; this is aberrant to the location of a residence indicated in 1875 (Figure 5). The USGS *1995 Jackson, Ohio 7.5*

Minute Series (Topographic) map indicates an electric line cutting obliquely through the project, no buildings are indicated (Figure 2).

There is one cemetery indicated within the project's study area. The Exline Cemetery is located to the north of the project by about 244 m (800 ft). This resource will not be involved or impacted by this project.

Evaluation of Research Questions 1 and 2

There were two questions presented in the research design that will be addressed at this point. These are:

- 1) Did the literature review reveal anything that suggests the project area had been previously surveyed?
- 2) Are cultural resources likely to be identified in the project area?

The project area has not been the subject of any previous investigations and only a cemetery is officially identified in the study area. Mills (1914) indicates that there are numerous sites, mostly mounds, in the study area as well as the county in general. The mounds appear to be affiliated with ridge top locations. The project area is a sloping toe ridge with much of the area having 15 percent or greater slope; therefore, much of the project is expected to be poorly suited for site identification. The 1875 atlas indicates a residence and coal bank within or near the project. The field investigations need to be aware of these resources and account for them as necessary and appropriate.

Fieldwork Results

The field investigations for this project were conducted on August 10th, 2017. At the time of survey, the weather conditions were dry, sunny, hot, and humid. The survey conditions were suitable for subsurface testing and weather was amiable for the completion of the fieldwork. The project plans are to construct a new electric switch station. The project area is a parcel that is located in an upland area that is sloping. Visual inspection and limited shovel probing was conducted as the entire area was found to be steeply sloped and/or disturbed. There were no cultural materials identified during these investigations.

Visual inspection was conducted throughout the project area. This noted that steep slope and severe disturbances prevail throughout the area. Frequently, the ground surface was exposed and there was no topsoil apparent. At the surface was typically a mixture of sandy clay loam subsoils and fragmented sandstone bedrock. These areas, those that lacked topsoil, were readily identified through the project. The lack of topsoil appears to be a combination of erosion, exposure, and grading activity. The area had been timbered relatively recently, which contributed to the lack of topsoil and disturbance. Inspection of the soils in the project indicated that this area was contained in setting that has 15 percent slope or greater. After inspection of the area, the steepness (and disturbed) nature of the project was realized.

Subsurface testing was accomplished within the project area, but it was limited by the sloping and disturbed conditions that were experienced. There were no intact soils identified during these investigations, so the testing was limited to shovel probing. There were 2 shovel probes excavated in the project and these confirmed that the area lacks topsoil. One probe was photographed to demonstrate that the area no longer retains natural topsoils. The probe was excavated to 18 cm below ground surface and it is apparent that only subsoil, fill, and/or bedrock remain in the area (Figure 12). The soils are hard, packed (from being driven over), sub-angular blocky, and clayey; they are indicative of subsoils in this area as the soils are very red. There were no cultural materials identified during these investigations that are older than 50 years.

According to atlas maps, there was a residence once located in the vicinity of the southeastern part of the project. Inspection was intensified in this area to attempt to identify any remnants of the possible residence. The inspection did not identify any buildings, ruins, or historic period materials and the area was found to be severely disturbed. Largely as a result of the extensively disturbed conditions and steep slope within the project area, no archaeological sites were identified during the survey.

APE Definition and NRHP Determination

The APE is a term that must be applied on an individual project basis. The nature of the project or undertaking is considered in determining the APE. This may include areas that are off the property or outside of the actual project's boundaries to account for possible visual impacts. When construction is limited to underground activity, the APE may be contained within the footprint of the project area. The APE for this project includes the footprint of the project and a limited area surrounding it as this document is pertinent to the archaeological component of the cultural resources investigation.

An inspection of the surrounding area did not identify any buildings or structures that were older than 50 years within view of the planned Heppner Switch Station. The project area is a remote setting and on a south-facing, steeply sloped landform. Mature deciduous forestation surrounds the area in nearly all directions. The project is shielded from view by the nature of the rugged terrain and the forestation.

There are no architectural resources in the study area. The undertaking is considered to have no affect on historic properties as it has: 1) a limited area of potential effect; 2) the construction activity is consistent with the surroundings; 3) there are no historic properties within what is regarded as being the area of potential effect (Figure 2).

Recommendations

In August 2017, Weller & Associates, Inc. (Weller) conducted a Phase I Cultural Resource Management Investigations for the Proposed 3.5 ha (8.6 ac) Heppner Switch Project in Coal Township, Jackson County, Ohio. The majority of the project area was found to be either severely disturbed or sloped. There were no archaeological deposits

identified. In consideration of the project type, the nature of the terrain, and what is within view of the project it was determined that this new electric switch station will not impact or involve any buildings or structures that are older than 50 years. It is the opinion of Weller that no historic properties or landmarks will be affected by the project. No further work is recommended for this undertaking.

References Cited

Baby, R. S., and M. A. Potter

1965 "The Cole Complex: A Preliminary Analysis of the Late Woodland Ceramics in Ohio and Their Relationship to the Ohio Hopewell Phase." In: *Papers in Archaeology of the Ohio Historical Society*, February 1965, No. 2. Ohio Historical Society, Columbus.

Baker, S. W., A. J. Toohey, A. Ericksen-Latimer, and K. Butterworth

1995 *Cultural Resources literature Search for the Proposed JAC-CR9-0.00 (Extension)/Sarah James Corporate park Access, In Lick Township, Jackson County, Ohio (PID 7569)*. The Ohio Department of Transportation, Office of Environmental Services submitted to Federal Highways. Copy available for review from the Ohio Historic Preservation Office, Columbus.

Bamforth, D.

1988 *Ecology and Human Organization on the Great Plains*. Plenum, New York.

Barkes, B. M.

1982 *Analysis of Late Woodland Ceramics from the Decco (33DL28), Ufferman (33DL12), and W. S. Cole (33DL11) Sites: The Cole Complex Reconsidered*. Copy available at the Ohio Historic Preservation Office, Columbus.

Brockman, C. S.

1998 *Physiographic Regions of Ohio*. Ohio Department of Natural Resources, Division of Geological Survey, Columbus, Ohio.

Brose, D. S.

1994 "Archaeological Investigations at the Paleo Crossing Site, a Paleoindian Occupation in Medina County, Ohio." In: *The First Discovery of America: Archaeological Evidence of the Early Ohio Area*, edited by W. S. Dancey, pp. 61-76. The Ohio Archaeological Council, Columbus.

Converse, R. N.

1994 *Ohio Flint Types*. The Archaeological Society of Ohio, Columbus.

Core, E.

1966 *Vegetation of West Virginia*. McClain, Parsons, West Virginia.

Cowan, W. C.

1987 *First Farmers of the Middle Ohio Valley: Fort Ancient Societies, A.D. 1000-1670*. The Cincinnati Museum of Natural History, Cincinnati.

Cramer, A.

1989 *The Dominion Land Company Site: An Early Adena Mortuary Manifestation in Franklin County, Ohio*. M.A. Thesis, Kent State University, Kent, Ohio.

Cunningham, R. M.

1973 "Paleo Hunters along the Ohio River." In: *Archaeology of Eastern North America* 1(1): 116-118. Eastern States Archeological Federation, Bethlehem, Connecticut.

Dancey, W. S.

1992 "Village Origins in Central Ohio: The Results and Implications of Recent Middle and Late Woodland Research." In: *Cultural Variability in Context: Woodland Settlements of the Mid-Ohio Valley*, edited by M. F. Seeman, pp. 24-29. Special Papers 7, *Midcontinental Journal of Archaeology*, Kent State University Press, Kent, Ohio.

Dragoo, D.

1976 "Some Aspects of Eastern North American Prehistory: A Review 1975." In: *American Antiquity* 41(1):3-27. The Society for American Archaeology, Washington, DC.

Drooker, P. B.

1997 "The View from Madisonville: Protohistoric Western Fort Ancient Interaction Patterns." In: *Memoirs of the Museum of Anthropology* No. 31. Museum of Anthropology, University of Michigan, Ann Arbor, Michigan.

Fitting, J.

1963 "The Hi-Lo Site: A Paleo-Indian Site in Western Michigan." In: *Wisconsin Archaeologist* 44:87-96. Wisconsin Historical Society, Madison, Wisconsin.

Forsyth, J. L.

1970 "A Geologist Looks at the Natural Vegetation Map of Ohio." In: *The Ohio Journal of Science* 70(s):180-191. The Ohio Academy of Science, Columbus.

Gordon, R. B.

1969 "The Natural Vegetation of Ohio in Pioneer Days." In: *Bulletin of the Ohio Biological Survey, New Series* 3(2). Ohio State University, Columbus.

1966 *Natural Vegetation of Ohio at the Time of the Earliest Land Surveys*. Ohio Biological Survey and the Natural Resources Institute of the Ohio State University, Columbus.

Howe, H.

1888 *Historical Collections of Ohio, Vol. I*. H. Howe & Son, Columbus.

Jones, R. A. and A. M. Jenkins, eds.

1953 *History of Jackson County, Sesquicentennial Edition*. Romaine Aten Jones and Anna Mae Jenkins, editors and publishers, Jackson, Ohio.

Justice, N.

1987 *Stone Age Spears and Arrow Points of the Midcontinental and Eastern United States*. Indiana University Press, Bloomington and Indianapolis.

Lake, D. J.

1875 *Historical Atlas of Jackson County, Ohio*. D. J. Lake & Company. Chicago.

McDonald, H.

1994 "The Late Pleistocene Vertebrate Fauna in Ohio: Coinhabitants with Ohio's Paleoindians." In: *The First Discovery of America: Archaeological Evidence of the Early Ohio Area*, edited by W. S. Dancy, pp. 23-41. The Ohio Archaeological Council, Columbus.

Mills, W. C.

1914 *An Archeological Atlas of Ohio*. Ohio State Archaeological and Historical Society, Columbus.

Morrow, F. C.

1956 *A History of Industry in Jackson County, Ohio*. The Lawhead Press, Wellston, Ohio.

Ohio Historic Preservation Office

1994 *Archaeology Guidelines*. Ohio Historic Preservation Office with the Ohio Historical Society, Columbus.

Pacheco, P.

1996 "Ohio Hopewell Regional Settlement Patterns." In: *A View From The Core: A Synthesis of Ohio Hopewell Archaeology*, edited by P. Pacheco, pp. 16-35. The Ohio Archaeological Council, Columbus.

Pavey, R.R., R.P. Goldthwait, C.S. Brockman, D.N. Huyll, E. MacSwinford, and R.G. Van Horn

1999 *Quaternary Geology of Ohio*. Ohio Division of Geological Survey Map No. 2. The Ohio Department of Natural Resources, Division of Geological Survey, Columbus.

Potter, M. A.

1966 "Cole Ceramics: A Study of Late Woodland Pottery." Unpublished M.A. thesis on file at the Ohio Historical Society, Department of Archaeology, Columbus.

Pratt, G. M., and D. R. Bush

1981 *Archaeological Resource Management in Ohio: A State Plan for Archaeology (Draft)*. Copy available for review at the Ohio Historic Preservation Office, Columbus.

Prufer, O. H., and D. A. Long

1986 "The Archaic of Northeastern Ohio." In: *Kent Research Papers in Archaeology*, No. 6, Kent State University Press, Kent, Ohio.

Sheaffer, C., and M. A. Rose

1998 *The Native Plants of Ohio, Bulletin 865*. The Ohio State University Extension (College of Food, Agricultural & Environmental Sciences) Department of Horticulture. Electronic document, http://ohioline.osu.edu/b865/b865_01.html, accessed November 28, 2005.

Shane, L.

1987 "Late-glacial Vegetational and Climatic History of the Allegheny Plateau and the Till Plains of Ohio and Indiana, U.S.A." In: *Boreas* 16:1-20. The Boreas Collegium, Blackwell Publishing Ltd., Edinburgh.

Stafford, R.

1994 "Structural Changes in Archaic Landscape Use in the Dissected Uplands of Southwestern Indiana." In: *American Antiquity*, 59:219-237. The Society for American Archaeology, Washington, DC.

Tankersley, K.

1994 "Was Clovis a Colonizing Population in Eastern North America?" In: *The First Discovery of America: Archaeological Evidence of the Early Ohio Area*, edited by W. S. Dancey, pp. 95-116. The Ohio Archaeological Council, Columbus.

1989 "Late Pleistocene Lithic Exploitation and Human Settlement Patterns in the Midwestern United States." Unpublished Ph.D. dissertation, Department of Anthropology, Indiana University, Bloomington.

Tanner, H.

1987 *Atlas of Great Lakes Indian History*. University of Oklahoma Press, Norman.

United States Department of Agriculture, Soil Conservation Service

1985 *Soil Survey of Jackson County, Ohio*. Soil Conservation Service, U. S. Department of Agriculture, Washington, D. C. in cooperation with the Ohio Department of Natural Resources, Division of Lands and Soils, and the Ohio Agricultural Research and Development Center, Columbus.

Webb, W. S., and R. S. Baby

1963 *The Adena People No. 2*. The Ohio Historical Society, The Ohio State University Press, Columbus.

Weller, R. J.

2005a *Data Recovery at the Haven Site (33DL1448) Located in Liberty Township, Delaware County, Ohio*. Weller & Associates. Submitted to the Delaware County Sanitary Engineer's Office. Copy available for review at the Ohio Historic Preservation Office.

2005b *Data Recovery at the Knowlton Site (33DL1450) Located in Liberty Township, Delaware County, Ohio*. Weller & Associates. Submitted to the Delaware County Sanitary Engineer's Office. Copy available for review at the Ohio Historic Preservation Office.

Williams, D. J.

1900 *A History of Jackson County, Ohio*. The Scioto Salt Springs, Jackson, Ohio.

Willard, E. B., ed.

1916 *A Standard History of the Hanging Rock Iron Region of Ohio: An authentic narrative of the past, with an extended survey of the industrial and commercial development*. The Lewis Publishing Company, Chicago.

Figures

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Figure 1. Political map of Ohio showing the approximate location of the project.

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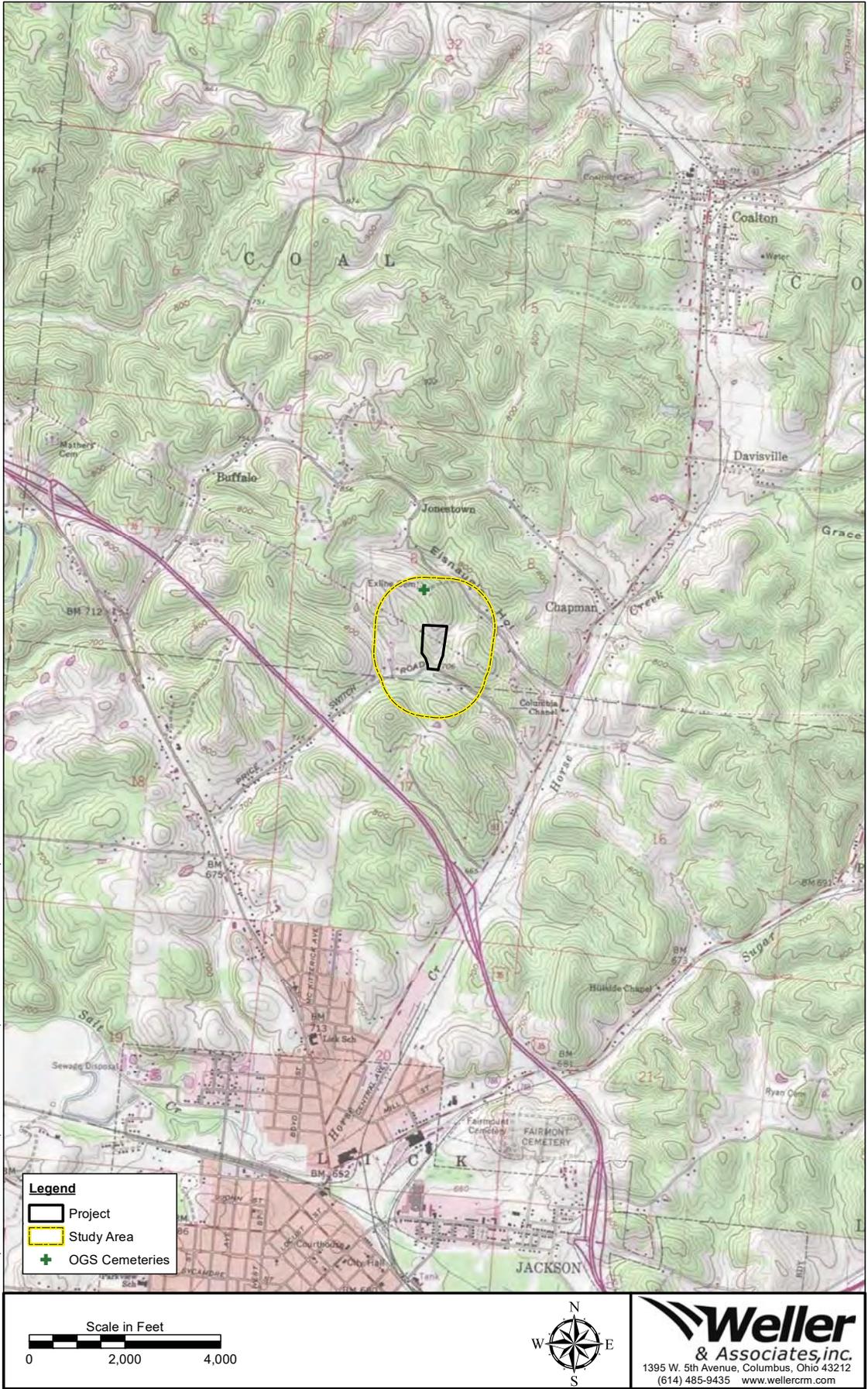


Figure 2. Portion of the USGS 1995 Jackson, Ohio 7.5 Minute Series (Topographic) map indicating the location of the project and previously recorded resources in the study area.

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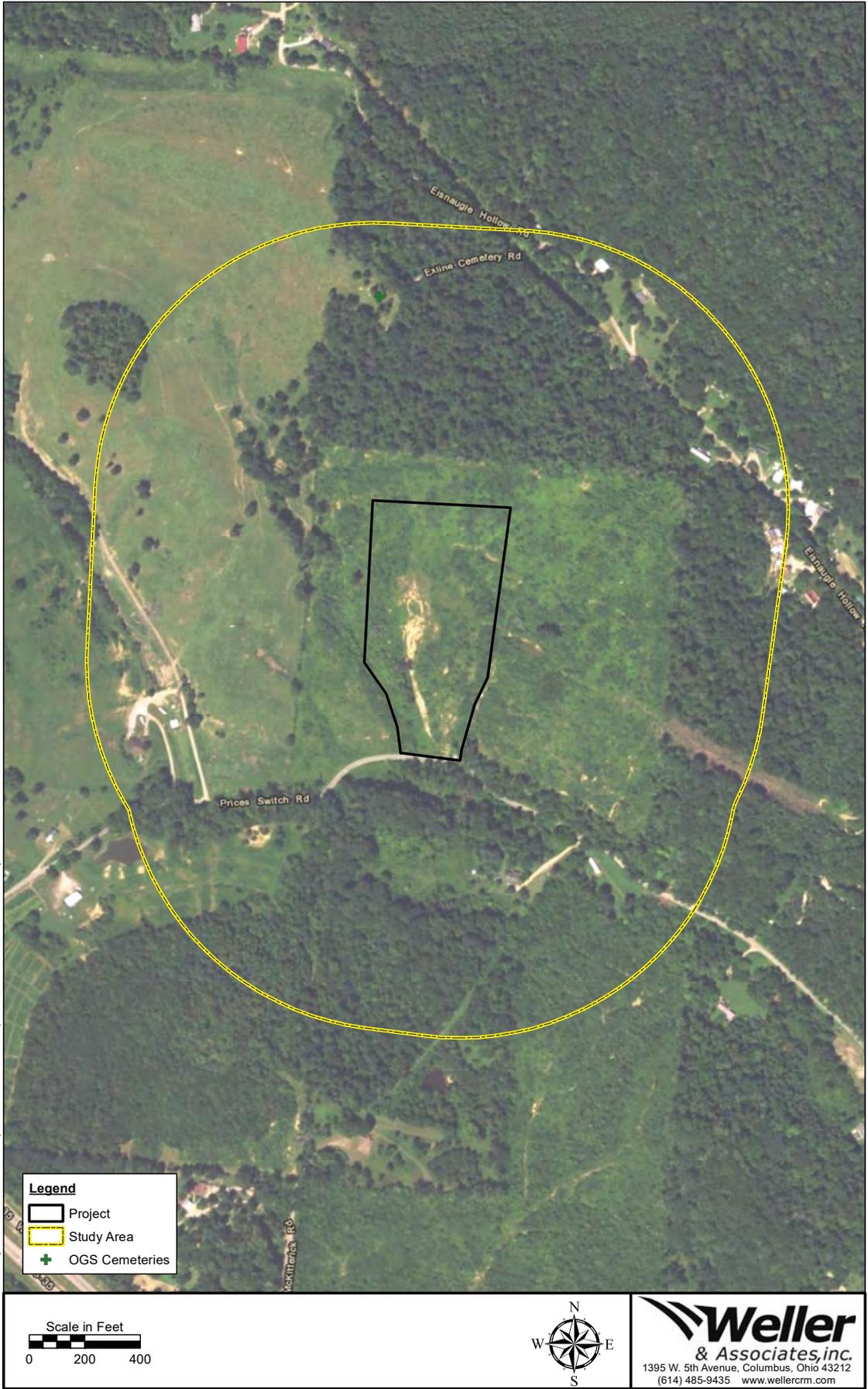


Figure 3. Aerial map indicating the location of the project and previously recorded resources in the study area.

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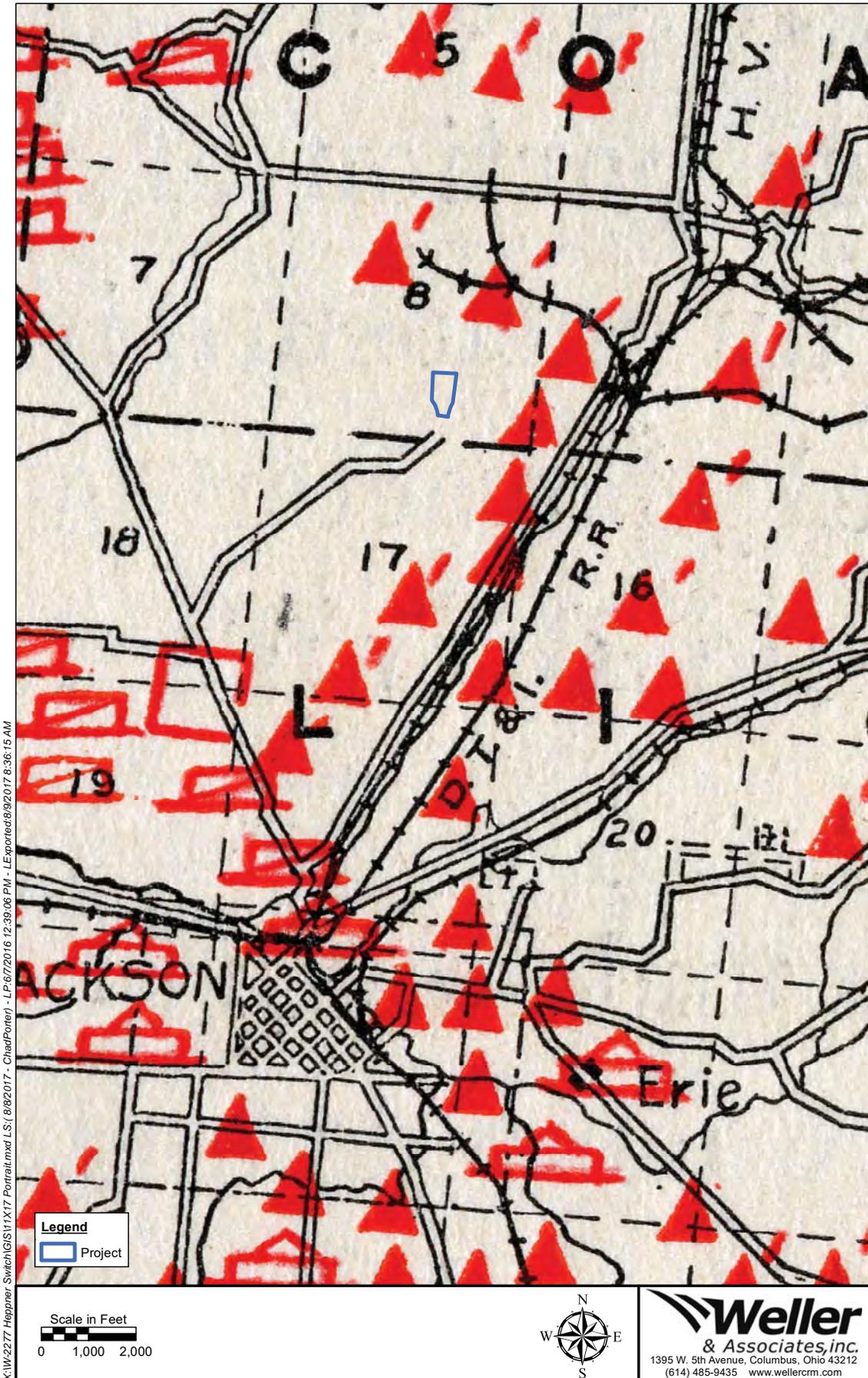


Figure 4. Portion of the *Archeological Atlas of Ohio* (Mills' 1914) indicating the approximate location of the project.



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Figure 5. Portion of the USGS 1913 Jackson, Ohio 15 Minute Series (Topographic) map indicating the approximate location of the project.

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Figure 6. Fieldwork results and photo orientation map.



Figure 7. Delineated wetland in the southern portion of the project.



Figure 8. Sloped and eroded conditions in the southern portion of the project area.



Figure 9. Disturbed conditions in the center of the project area.



Figure 10. Sloped conditions in the eastern portion of the project area.



Figure 11. Disturbed conditions in the northern portion of the project area.



Figure 12. Disturbed soils encountered in a shovel probe excavated in the central portion of the project area.

LETTER OF NOTIFICATION FOR HEPPNER STATION PROJECT

Appendix C Ecological Survey Report
December 4, 2017

Appendix C Ecological Survey Report

Ecological Survey Report

AEP Ohio Transmission Company
Heppner Substation Project
Jackson County, Ohio

GAI Project Number: C170352.08, Task 001

September 2017



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Ecological Survey Report

AEP Ohio Transmission Company
Heppner Substation Project
Jackson County, Ohio

GAI Project Number: C170352.08, Task 001

September 2017

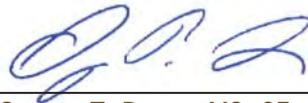
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1.0 Introduction

GAI Consultants, Inc. (GAI), on behalf of American Electric Power Ohio Transmission Company (AEP), completed an ecological survey for the Heppner Substation Project (Project) located in Jackson County, Ohio (OH). The Project involves the construction of the proposed Heppner Substation.

Ecological surveys were completed on May 16, 2017, and August 7, 2017. The study area consisted of an approximately 8.3-acre area surrounding the proposed Heppner Substation, as shown on Figure 1.

The Project study area is located within the Horse Creek - Little Salt Creek [United States Geological Survey (USGS) Hydrologic Unit Code (HUC) #050600020803] watershed.

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

2.0 Methods

2.1 Wetlands

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

2.1.1 Preliminary Data Gathering

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

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

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

2.1.2 Onsite Inspection

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

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

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

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

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

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

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

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

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

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

2.2 Waterbodies

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

2.2.1 Preliminary Data Gathering

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

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

2.2.2 Onsite Inspection

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

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

2.3 Rare, Threatened, and Endangered Species

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

2.3.1 Preliminary Data Gathering

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

2.3.2 Onsite Inspection

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

3.0 Results

3.1 Wetlands

3.1.1 Preliminary Data Gathering

Desktop review of available USFWS NWI digital data for the Project did not reveal any NWI mapped wetlands within the Project study area (USFWS, 2015).

According to the USDA-NRCS soil mapping, a total of three soil map units are located within the Project study area (Figure 2). None of the soil map units are classified as hydric and none are known to contain hydric inclusions.

3.1.2 Onsite Inspection

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

3.1.3 Regulatory Discussion

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

The status of wetlands is determined partly based on the classification of the waterbody that the wetland is associated with, and the degree of that association. Wetlands that abut or are adjacent to TNWs are jurisdictional. Wetlands that abut RPWs are jurisdictional. Wetlands that are adjacent to RPWs and wetlands that abut or are adjacent to Non-RPWs must be subjected to the Significant Nexus Test (SNT) to determine their jurisdictional status. Generally, the USACE considers wetlands that are isolated, meaning that they are not associated with any

other surface water feature, as non-jurisdictional; and wetlands that abut or are adjacent to Non-RPWs as needing further examination by the USACE to determine and verify whether they exhibit a significant nexus to waters of the United States. If these wetlands exhibit a significant nexus, they are jurisdictional; if not, they are not subject to USACE jurisdiction.

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

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

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

3.2 Waterbodies

3.2.1 Preliminary Data Gathering

Desktop review of the available USGS topographic mapping did not reveal any previously mapped stream segments located within the Project study area (Figure 1). Desktop review of OEPA's Stream Eligibility Web Map revealed the Project is located within a possibly eligible area for automatic 401 WQC coverage (Figure 3).

3.2.2 Onsite Inspection

One intermittent stream segment was identified and delineated within the Project study area. Information on the delineated waterbodies and their classifications can be found in Table 2, and photographs of the identified stream are included in Appendix A.

3.2.3 Regulatory Discussion

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

Streams are generally defined as environmental features that have defined beds and banks, an OHWM as defined in Regulatory Guidance Letter No. 05-05 (USACE, 2005), and contain flowing or standing waters for at least a portion of the year. Streams were classified as perennial, intermittent, or ephemeral based upon presence of flow, estimated duration of flow, stream bed characteristics, and presence of aquatic biota. The USACE *Jurisdictional Determination Form Instructional Guidebook* (USACE, 2007) was used to determine stream classification and flow status.

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

The stream segment (S001) is identified as an Unnamed Tributary (UNT) to Horse Creek. This stream segment was evaluated using the HHEI and determined to be located within a possibly eligible area for coverage under the 401 WQC for NWP.

3.3 Rare, Threatened, and Endangered Species

3.3.1 Preliminary Data Gathering

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

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

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

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

3.3.2 Onsite Inspection

Potential habitat for RTE species was evaluated within the Project study area. In general, the habitat encountered within the study area consisted of early successional scrub-shrub habitat, maintained right-of-way, and PSS wetland.

3.3.3 Regulatory Discussion

State-listed RTE species fall under the jurisdiction of the ODNR, Division of Wildlife, while federally-listed species are covered under Section 7 of the Endangered Species Act. The Bald and Golden Eagle Protection Act and Migratory Bird Act aim to extend protection to certain bird species that fall under the jurisdiction of the USFWS. Based on the desktop review and on-site inspection, informal consultation with the ODNR and USFWS has been initiated to determine if any activities associated with the proposed Project may affect state- and/or federally-listed RTE species. The ODNR and USFWS consultation letters were submitted on May 11, 2017, and are provided in Appendix E. A response from the USFWS was received on June 2, 2017, and the ODNR response was received on August 22, 2017. Both response letters are provided in Appendix E.

4.0 Conclusions

Ecological surveys were conducted within the Project study area on May 16, 2017, and August 7, 2017. One PSS wetland and one intermittent stream were identified within the Project study area. Summaries of the delineated aquatic features are provided in Tables 1 and 2, and a map depicting their location is included as Figure 2. Photographs of the wetland and stream features, as well as current site conditions, are included in Appendix A. Wetland Determination Data Forms documenting the investigation are provided in Appendix B, with HHEI and ORAM Data Forms provided in Appendix C and D, respectively.

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

5.0 References

- Cowardin, D. M., V. Carter, F. C. Golet, and E. T. La Roe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. United States Department of the Interior, Fish and Wildlife Service. Publication No. FWS/OBS 79/31. Washington, D.C.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. United States Department of the Army, United States Army Engineer Waterways Experiment Station. Technical Report Y-87-1. Vicksburg, Mississippi.
- Federal Emergency Management Agency. 2015. National Flood Hazard Layer Web Map Service (WMS). Available from <https://hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload>.
- Lichvar, R. W., D.L. Banks N. C. Melvin, and W. N. Kirchner. 2016. The National Wetland Plant List: 2016 Update of Wetland Ratings. Phytoneuron 2016-30: 1-17. United States Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, and BONAP, Chapel Hill, North Carolina. Available from <http://rsgisias.crrel.usace.army.mil/NWPL/>.
- Mack, John J. 2001. Ohio Rapid Assessment Methods for Wetlands Manual for Using Version 5.0. Ohio EPA Technical Bulletin Wetland/2001-1-1. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, Ohio.
- Ohio Administrative Code. 2011. State of Ohio: Water Quality Standards, Chapter 3745-1.
- Ohio Department of Natural Resources, Division of Wildlife. Ohio's Listed Species. <https://wildlife.ohiodnr.gov/portals/wildlife/pdfs/publications/information/pub356.pdf>.
- Ohio Environmental Protection Agency. 2006. Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI). Ohio EPA Division of Surface Water, Columbus, Ohio.
- Ohio Environmental Protection Agency. 2012. Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams. Version 3.0. Ohio EPA Division of Surface Water, Columbus, Ohio. 117 pp.
- Ohio Environmental Protection Agency, Division of Surface Water. 2017. 401 Water Quality Certification for the Nationwide Permits Stream Eligibility Web Map (2017 Reissuance). <http://oepa.maps.arcgis.com/apps/webappviewer/index.html?id=e6b46d29a38f46229c1eb47deefe49b6>.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database for Jackson County, Ohio. Available online at <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
- United States Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0*, ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-10-9. Vicksburg, Mississippi: United States Army Engineer Research and Development Center.
- United States Army Corps of Engineers. 2007. Jurisdictional Determination Form Instructional Guidebook. Available from http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/cwa_guide/jd_guidebook_051207final.pdf. Accessed March 2017.
- United States Fish and Wildlife Service, Environmental Conservation Online System. Information for Planning and Consultation. <https://ecos.fws.gov/ipac/>.

United States Fish and Wildlife Service. 2015. National Wetlands Inventory for Ohio. Washington, D.C.: U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation. Available from <http://www.fws.gov/wetlands/Data/Mapper.html>.

United States Fish and Wildlife Service. 2017. County Distribution of Federally-Listed Endangered, Threatened, and Proposed Species. U.S. Fish and Wildlife Service, Endangered Species, Midwest Region. Available from <https://www.fws.gov/midwest/endangered/lists/ohio-cty.html>.

United States Geological Survey. 1977. Wellston, Ohio 7.5-Minute Topographic Quadrangle (1:24,000).

United States Geological Survey. 1978. Jackson, Ohio 7.5-Minute Topographic Quadrangle (1:24,000).

TABLES

**Table 1
 Wetlands Identified Within the Project Study Area**

Wetland I.D. ¹	Latitude ²	Longitude ²	Proximal Waterbody	USACE Classification ³	Cowardin Classification ⁴	Size ⁵ (acres)	ORAM v. 5.0 Score ⁶	ORAM Category ⁷	Figure 2 (sheet)
W001-PSS-CAT2	39.0855880	-82.631644	UNT to Horse Creek	Jurisdictional; Abutting	PSS	0.088	33	2	1

Notes:

- 1 GAI map designation.
- 2 North American Datum, 1983.
- 3 Jurisdictional status is the opinion of GAI and must be confirmed by USACE and state agencies through the JD process.
- 4 PSS - Palustrine Scrub-Shrub.
- 5 Total acreage of wetland located within the Project study area.
- 6 Interim scoring breakpoints for wetland regulatory categories for ORAM v 5.0 Score: Category 1 score 0 - 29.9; Category 2 or 3 score 30 - 34.9; Category modified 2 score 35 - 44.9; Category 2 score 45 - 59.9; Category 3 score 60 - 64.9; Category 3 score 65 - 100. OEPA Ecology Unit Division of Surface Water. *ORAM v. 5.0 Qualitative Score Calibration*. Dated August 15, 2000. http://www.epa.ohio.gov/portals/35/401/oram50sc_s.pdf.
- 7 OAC Rule 3745-1-54(C)(2) defines Category 1 wetlands as wetlands which "...support minimal wildlife habitat, and minimal hydrological and recreation functions," and as wetlands which have "...hydrologic isolation, low species diversity, a predominance of non-native species, no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions." Category 2 wetlands are defined as wetlands which "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Degraded but Restorable Category 2 Wetlands are according to OAC Rule 3745-1-54(C) states that wetlands that are assigned to Category 2 constitute the broad middle category that "...support moderate wildlife habitat, or hydrological or recreational functions," but also include "...wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." OAC Rule 3745-1-54(C)(2) defines Category 3 wetlands as wetlands which "...support superior habitat, or hydrological or recreational functions," and as wetlands which have "...high levels of diversity, a high proportion of native species, or high functional values."

**Table 2
 Waterbodies Identified Within the Project Study Area**

Stream I.D. ¹	Waterbody Name	OEPA WQ Designation ²	OEPA Stream Eligibility ³	Stream Type	USACE Classification ⁴	HHEI Score ⁵	PHWH Class ⁵	OHEI Score ⁶	Bank Width ⁷ (feet)	OHWM Width (feet)	OHWM Depth (inches)	Stream Length ⁸ (feet)	Latitude ⁹	Longitude ⁹	Figure 2 (sheet)
S001	UNT to Horse Creek	-	Possibly Eligible	Intermittent	RPW	40	Modified Class II	-	4	2	4	392	39.085972	-82.631712	1

Notes:

- 1 GAI map designation.
- 2 As defined by OAC Chapter 3745-1 Water Quality Standards, Water use designations and statewide criteria (OAC 3745-1-24). http://www.epa.ohio.gov/dsw/rules/3745_1.aspx.
- 3 As defined by the 401 WQC conditions for stream eligibility coverage under the 2017 NMP program. Streams located in Possibly Eligible areas are eligible for coverage if the pH is <6.5 or stream flow is ephemeral. Streams located in Possibly Eligible areas are also eligible for coverage if the HHEI score is < 50, or if the HHEI score is between 50-69 and substrate composition is ≤10% coarse types (includes cumulative percentage of bedrock, boulders, boulder slabs, and cobble).
- 4 Jurisdictional status is the opinion of GAI and must be confirmed by USACE and state agencies through the JD process. RPW - Relatively Permanent Waters.
- 5 Scoring for OEPA Headwater Habitat Evaluation Index (HHEI) Primary Headwater Habitats (PHWH). Class I = 0 - 29.9 and include *normally dry channels with little or no aquatic life present*; Class II = 30 - 69.9 and are equivalent to "warm water habitat"; Class III = 70 - 100 and typically have perennial flow with cool-cold water adapted native fauna.
- 6 Narrative rating for headwater streams using the OEPA Qualitative Habitat Evaluation Index (QHEI). Excellent = ≥70; Good = 55 - 60; Fair = 43 - 54; Poor = 30 - 42; Very Poor = <30.
- 7 Width in feet from tops of stream bank.
- 8 Total stream length (in feet) located within the Project study area.
- 9 North American Datum, 1983.

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

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

Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Mammals (Cont.)						
Bobcat	<i>Lynx rufus</i>	Varies; Generally solitary, territorial, and elusive	T	No	No; Impacts are not anticipated due to the Project location	-
Mussels						
Elephant-ear	<i>Elliptio crassidens crassidens</i>	Large rivers in mud, sand, or fine gravel	E	No	No; Known habitat types are not present within the Project area	-
Sharp-ridged pocketbook	<i>Lampsilis ovata</i>	Large rivers in coarse sand or gravel	E	No	No; Known habitat types are not present within the Project area	-
Little spectaclecase ¹	<i>Villosa lienosa</i>	Small to medium streams in sand or gravel	E	Yes	No; Per the ODNR response, this Project is not likely to impact this species	-
Black sandshell	<i>Ligumia recta</i>	Medium to large rivers in riffles or raceways in gravel or firm sand	T	No	No; Known habitat types are not present within the Project area	-
Fawnsfoot	<i>Truncilla donaciformis</i>	Large rivers or the lower reaches of medium-sized streams in sand or gravel	T	No	No; Known habitat types are not present within the Project area	-
Pondhorn	<i>Unio merus tetralasmus</i>	Ponds, small creeks, and the headwaters of larger streams in mud or sand	T	No	No; Known habitat types are not present within the Project area	-
Plants						
Small white snakeroot	<i>Ageratina aromatica</i>	A variety of well-drained open areas on acidic soils	E	No	No; Known habitat types are not present within the Project area	-
Louisiana sedge	<i>Carex louisianica</i>	Swamp woods and shaded alluvial situations	E	No	No; Known habitat types are not present within the Project area	-
Willdenow's croton	<i>Croton willdenowii</i>	Barren stony or sandy clearings	E	No	No; Known habitat types are not present within the Project area	-
Sessile dodder	<i>Cuscuta compacta</i>	Low woods and thickets	E	No	No; Known habitat types are not present within the Project area	-

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

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

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

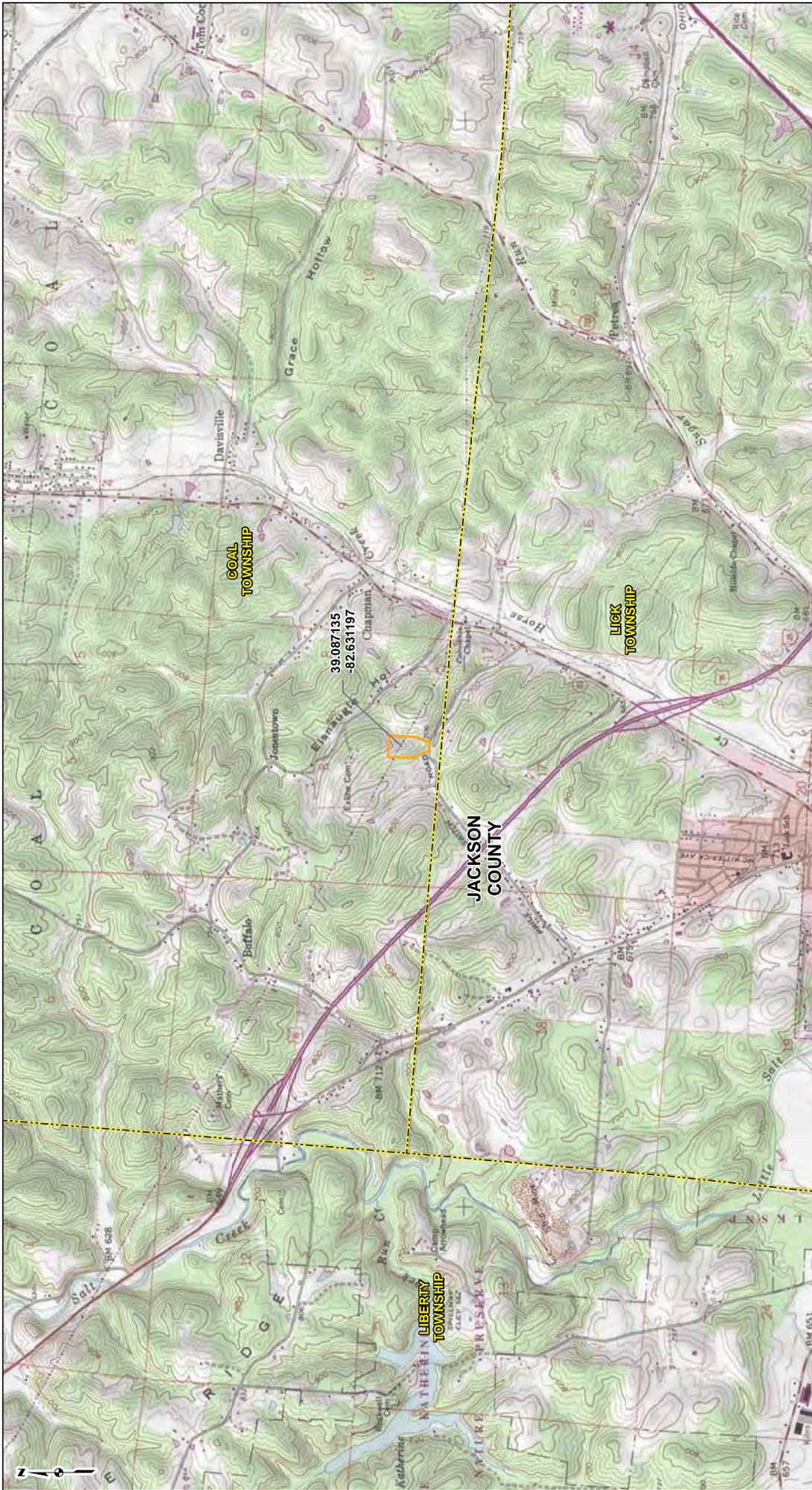
Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Plants (Cont.)						
Carolina leaf-flower	<i>Phyllanthus carolinensis</i>	A variety of moist, open to semi-open situations, usually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

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

Notes:

- ¹ ODNR, Division of Wildlife (DOW) comments included in the ODNR response, dated August 22, 2017.
- ² Federally listed species, migratory bird, or species of concern comments included in the USFWS response, dated June 2, 2017.
- ³ E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; FE = federal endangered; FT = federal threatened; FSC = federal species of concern; FC = federal candidate.

FIGURES



PROJECT LOCATION

JACKSON COUNTY, OHIO

REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO. OBTAINED THROUGH ESRI USA TOPO MAPS NATIONAL GEOGRAPHIC TOPO AND USGS. ACCESSED 09/20/17.

PROJECT LOCATION MAP

HEPPNER SUBSTATION PROJECT
AMERICAN ELECTRIC POWER

gall consultants

DRAWN BY: AKW
 CHECKED: MDC
 DATE: 9/25/2017
 APPROVED: ARW

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FIGURE 1

LEGEND

- STUDY AREA
- COUNTY BOUNDARY
- TOWNSHIP BOUNDARY

0 1,000 2,000 4,000 Feet



JACKSON COUNTY, OHIO

REFERENCES: ESRI WORLD IMAGERY, MICROSOFT, TRANSPORTATION, ESRI, DELORNE, HERE, MAPMYINDIA, TOMTOM, © OPENSTREETMAP CONTRIBUTORS, AND THE JACKSON COUNTY GIS DEPARTMENT. DATA SOURCES: AGRICULTURE ONLINE (ACCESSED 09/20/17), NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USEFWS, 2017, NATIONAL FLOOD HAZARD LAYER, FEDERAL AGENCY FOR SURVEY AND MAPPING (FEMA), NATIONAL SURVEY OF WETLANDS (NSWI) DATABASE FOR JACKSON COUNTY, OHIO, US DANRCS, 2015, ODNR (OHIO DEPARTMENT OF NATURAL RESOURCES) LAND, 2014.

- LEGEND**
- STUDY AREA
 - 100-YEAR FLOODPLAIN
 - TOWNSHIP BOUNDARY
 - COUNTY BOUNDARY
 - SOIL TYPE BOUNDARY
 - ODNR LAND
 - NWI WETLAND
 - CULVERT
 - UPLAND DATA POINT
 - WETLAND DATA POINT
 - STREAM
 - PSS WETLAND



FIGURE 2
RESOURCE LOCATION MAP

HEPPNER SUBSTATION PROJECT
AMERICAN ELECTRIC POWER

DATE: 9/25/2017
 APPROVED: ARW

DRAWN BY: AKW
 CHECKED: MDO

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APPENDIX A Photographs



Photograph 1. Wetland W001-PSS-CAT2, Facing North



Photograph 2. Wetland W001-PSS-CAT2, Facing West



Photograph 3. Stream S001, Upstream, Facing North



Photograph 4. Stream S001, Downstream, Facing South



Photograph 5. Representative upland habitat, Facing North



Photograph 6. Representative upland habitat, Facing South



Photograph 7. Representative upland habitat, Facing East



Photograph 8. Representative upland habitat, Facing West

APPENDIX B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner Substation City/County: Jackson Co. Sampling Date: 8/7/2017
 Applicant/Owner: AEP State: OH Sampling Point: W001-PSS-CAT2
 Investigator(s): KLV Section, Township, Range: Coal Twp
 Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): concave Slope (%) 01
 Subregion (LRR or MLRA): LRR Lat: 39.085911 Long: -82.1031627 Datum: NAD 83
 Soil Map Unit Name: RmE - Ringley-Clymer association, steep NWI classification: N/A

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

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

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

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

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

Remarks: Wetland data point for W001-PSS-CAT2 (PSS).
Data point taken in riparian of Intermittent Stream and previous clear cut area

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required, check all that apply)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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"/> (includes capillary fringe)	Depth (inches): <input type="text"/>	

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

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

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Heppner Substation City/County: Jackson Co Sampling Date: 8/7/2017
 Applicant/Owner: AEP State: OH Sampling Point: W001-PSS-CAT2-UPL
 Investigator(s): KLV Section, Township, Range: Coal Twp.
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%) 0.1
 Subregion (LRR or MLRA): LRR Lat: 39.085987 Long: 82.631658 Datum: NAD83
 Soil Map Unit Name: RmE-Rigley-Clymer association steep NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)
 Are Vegetation 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 W001-PSS-CAT2.
Data point taken in old clear cut area.

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required, check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
--	---

<p>Field Observations:</p> <p>Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/></p> <p>Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/></p> <p>Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)</p>	<p>Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
--	--

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>Rubus allegheniensis</u>		<u>50</u>	<u>N</u>	<u>FACU</u>
2. <u>Liriodendron tulipifera</u>		<u>10</u>	<u>N</u>	<u>FACU</u>
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		<u>60</u>	= Total Cover	
Herb Stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Impatiens capensis</u>		<u>10</u>	<u>Y</u>	<u>FACW</u>
2. <u>Panicum cladestinum</u>		<u>10</u>	<u>Y</u>	<u>FAC</u>
3. <u>Solidago canadensis</u>		<u>10</u>	<u>Y</u>	<u>FACU</u>
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		<u>30</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: 4 (B)

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

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 $\leq 3.0^1$
 - _____ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - _____ Problematic Hydrophytic Vegetation¹ (Explain)
- ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes _____ No ✓

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

Upland veg is dominant.

APPENDIX C

Primary Headwater Habitat Evaluation (HHEI) Data Forms



Primary Headwater Habitat Evaluation Form

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

40

SITE NAME/LOCATION ACP-Heppner Substation
 SITE NUMBER _____ RIVER BASIN Scioto River DRAINAGE AREA (mi²) 0.06
 LENGTH OF STREAM REACH (ft) 200 LAT. 39.085972 LONG. 82.631712 RIVER CODE _____ RIVER MILE _____
 DATE 8/7/2017 SCORER KLV COMMENTS S001

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>20</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>20</u>
<input type="checkbox"/> BEDROCK [16 pt]	_____	<input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<u>10</u>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<u>10</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 10 (A) 6 (B) 4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 4

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 10

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 4'

HHEI Metric Points

Substrate Max = 40

10

A + B

Pool Depth Max = 30

15

Bankfull Width Max=30

15

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)	
Wide >10m		Mature Forest, Wetland	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>
Moderate 5-10m		Residential, Park, New Field	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>
Narrow <5m			<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
None			<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>

COMMENTS _____

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

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

COMMENTS _____

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
---	---	--	---	--

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

QHEI PERFORMED? - Yes No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

WWH Name: Horse Creek Distance from Evaluated Stream 2.6
 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: Jackson, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jackson Co. Township / city: Coal Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 8/7/2017 Quantity: 1"
Photograph Information: _____
Elevated Turbidity? (Y/N): N Canopy (% open): 50%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

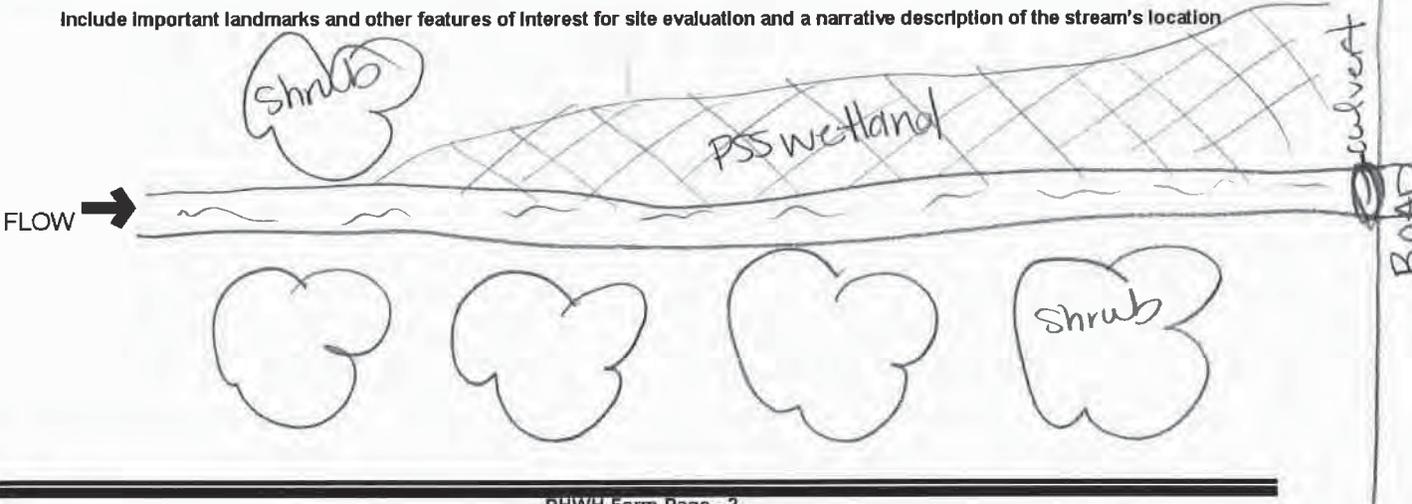
Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology: _____

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

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



APPENDIX D

Ohio Rapid Assessment Method for Wetlands (ORAM) Data Forms

Site: AEP-Hoppner Substation Rater(s): KLV Date: 8/7/2017

0	0
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Metric 1. Wetland Area (size).

W001-PSS-CAT2

max 6 pts. subtotal

Select one size class and assign score.

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

9	9
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Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

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

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

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

12	21
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Metric 3. Hydrology.

max 30 pts. subtotal

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

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

3b. Connectivity. Score all that apply.

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

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

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

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

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

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

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

Check all disturbances observed	
<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 checked="" type="checkbox"/> other <i>timbering</i>

7	28
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Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

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

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

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

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

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

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

Check all disturbances observed	
<input type="checkbox"/> mowing	<input checked="" type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input checked="" 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

28

subtotal this page

Site: APP-Hopper Substation Rater(s): KLV Date: 8/7/2017

W001-PSS-CAT2

28
subtotal first page

0 28
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 33
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

33 Cat. 2

End of Quantitative Rating. Complete Categorization Worksheets.

APPENDIX E

ODNR and USFWS Correspondence



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

August 22, 2017

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

Re: 17-395; AEP Heppner Substation Project

Project: The proposed project involves the construction of the Heppner Substation.

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

Coalton Wildlife Area – ODNR Division of Wildlife

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

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

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

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

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

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

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 11, 2017
Project C170352.08

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 Substation 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 Substation 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 construction of the Heppner Substation (approximately five acres).

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists primarily of shrub-dominated old field habitat. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

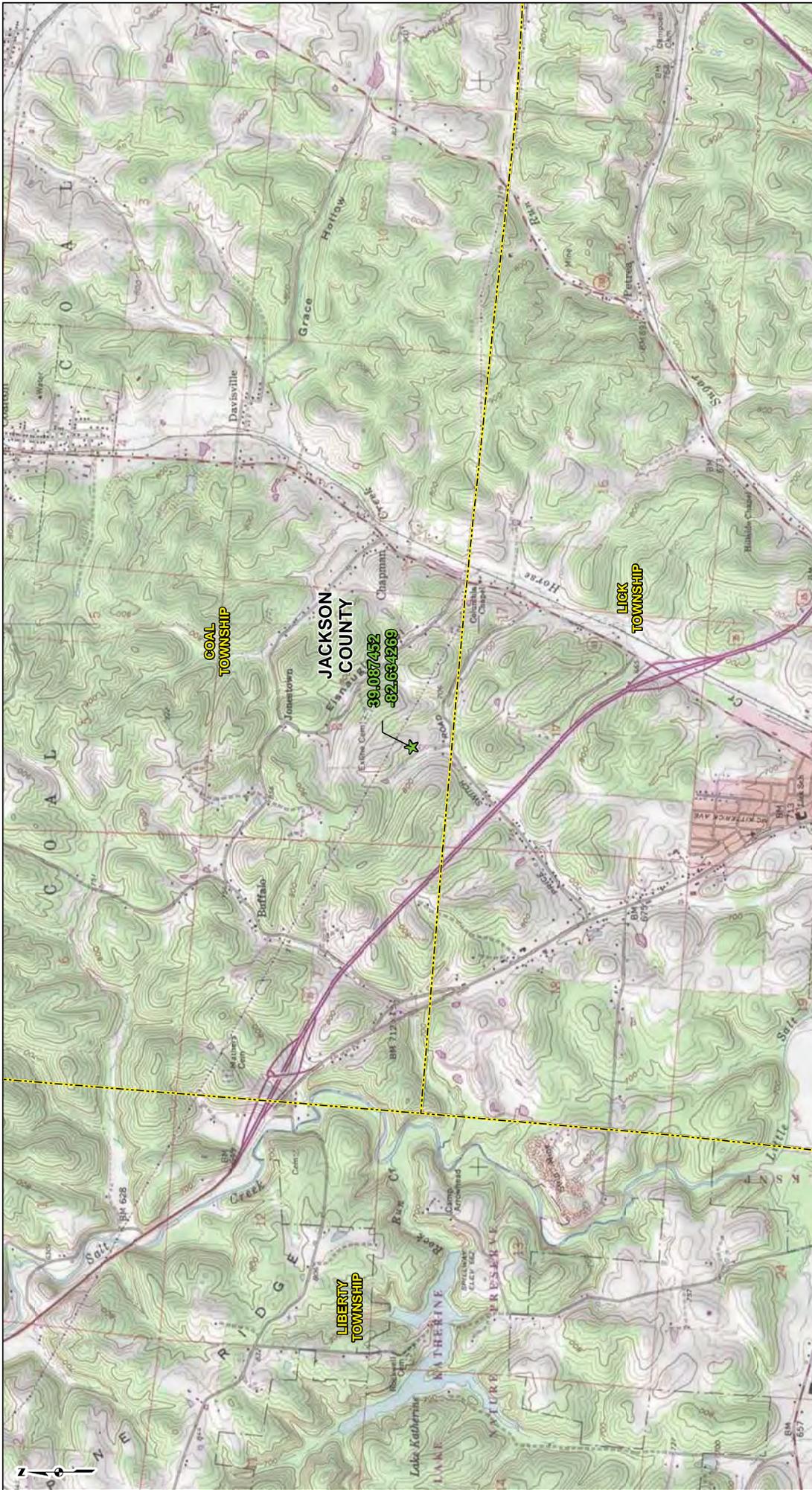
A handwritten signature in blue ink, appearing to read 'Allison R. Wheaton'.

Allison R. Wheaton, WPIT
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)
Project Shapefiles

ATTACHMENT 1
PROJECT LOCATION MAP



PROJECT LOCATION



REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO. OBTAINED THROUGH ESRI USA TOPIC MAPS. NATIONAL GEOGRAPHIC TOPO AND USGS. ACCESSED 03/2017.

JACKSON COUNTY, OHIO

LEGEND

- PROPOSED SUBSTATION
- COUNTY BOUNDARY
- TOWNSHIP BOUNDARY



PROJECT LOCATION MAP



DRAWN BY: AKW
 CHECKED: EFJ

DATE: 5/11/2017
 APPROVED:

Z:\Energy\2017\C170352.08 - AEP - Heppner Substation\GIS\MXD\Agency_Consultation\Project_Location_2017_05_08.mxd

From: susan_zimmermann@fws.gov on behalf of [Ohio, FW3](#)
To: [Allison Wheaton](#)
Cc: kate.parsons@dnr.state.oh.us; nathan.reardon@dnr.state.oh.us
Subject: Four (4) AEP Projects: Heppner / Rhoads / Ginger / Rhoads-Heppener
Date: Friday, June 02, 2017 1:39:00 PM
Attachments: [Capture of Dan.PNG](#)



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



03E15000-2017-TA-1329 GAI AEP Ginger Switch Replacement Project, Ross Co.
03E15000-2017-TA-1328 GAI AEP Heppner Substation Project, Jackson Co.
03E15000-2017-TA-1327 GAI AEP Rhodes Substation Project, Jackson Co.
03E15000-2017-TA-1326 GAI AEP Rhoads-Heppner 138kV Line Rebuild, Jackson

Dear Ms. Wheaton,

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

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

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags =3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as

well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees ≥ 3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, we recommend that removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see <http://www.fws.gov/midwest/endangered/mammals/nleb/index.html>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

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

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

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

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

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Dan Everson". The signature is fluid and cursive, with the first name "Dan" being the most prominent part.

Dan Everson

Field Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW



Canton Office
3720 Dressler Road Northwest
Canton, Ohio 44718

T 330.433.2680
F 330.433.2694

May 11, 2017
Project C170352.08

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 Substation 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 Substation 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 construction of the Heppner Substation (approximately five acres).

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists primarily of shrub-dominated old field habitat. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

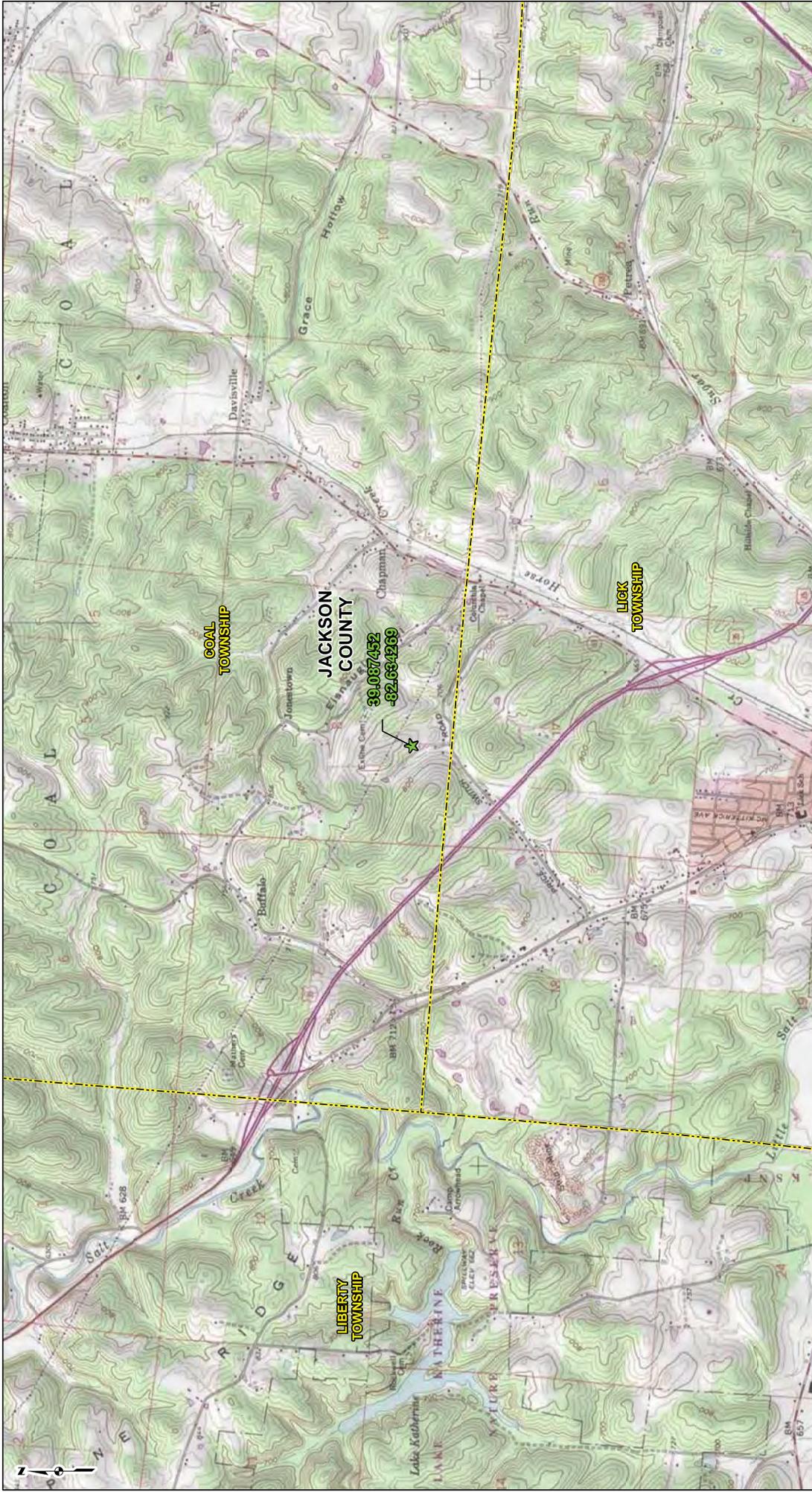
A handwritten signature in blue ink, appearing to read 'Allison R. Wheaton'.

Allison R. Wheaton, WPIT
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)
Project Shapefiles

ATTACHMENT 1
PROJECT LOCATION MAP



PROJECT LOCATION



JACKSON COUNTY, OHIO

REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO. OBTAINED THROUGH ESRI USA TOPO MAPS. NATIONAL GEOGRAPHIC TOPO AND USGS. ACCESSED 03/2017.

LEGEND

- PROPOSED SUBSTATION
- COUNTY BOUNDARY
- TOWNSHIP BOUNDARY



PROJECT LOCATION MAP



HEPPNER SUBSTATION PROJECT
AMERICAN ELECTRIC POWER

DRAWN BY: AKW
CHECKED: EFJ
DATE: 5/11/2017
APPROVED:

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

12/4/2017 3:38:55 PM

in

Case No(s). 17-0806-EL-BLN

Summary: Letter of Notification electronically filed by Ms. Christen M. Blend on behalf of AEP Ohio Transmission Power Company, Inc.