AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Legal Department

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

Ryan F. M. Aguiar
Counsel
(614) 716-2931 (P)
raguiar@aep.com

July 7, 2017

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

Re: Case No. 17-0810-EL-BLN Request for Expedited Treatment: Letter of Notification for the Lamping Station Project

Dear Chairman Haque,

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

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

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

Respectfully submitted,

/s/ Ryan F. M. Aguiar
Ryan F. M. Aguiar (0095615)
Counsel for AEP Ohio Transmission Company, Inc.

cc: John Jones, Counsel OPSB Staff
Jon Pawley, OPSB Staff
Hector Garcia, Senior Counsel, AEP Ohio Transco

Letter of Notification for the Lamping Station Project

PUCO Case No. 17-0810-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.

July 7, 2017

July 7, 2017

Letter of Notification

Lamping 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 applicant shall provide the name of the project and applicant's reference number, names and reference number(s) of resulting circuits, a brief description of the project, and why the project meets the requirements for a letter of notification or construction notice application.

AEP Ohio Transco proposes to construct the Lamping Station Project ("Project") in Washington Township, Monroe County, Ohio. The Project consists of constructing a new 138/69 kV electric transmission substation and a new 345/138 kV electric transmission substation. The Project will be constructed on property currently owned by AEP Ohio Transco, located along Floyd Hall Road near its intersection with Dearth Ridge-Rias Run Road (County Highway 13) in Graysville. The location of the Project is shown on a United States Geologic Survey (USGS) Topographic Map as Exhibit 1-1 in Appendix A.

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

> *(3) Constructing a new electric power transmission substation.*

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.

AEP Ohio Transco, Ohio Power Company, Buckeye Power, Inc. ("Buckeye"), and Washington Electric Cooperative, Inc. ("Washington") (collectively, the "Companies") have agreed to implement a long-term plan aimed at enhancing the reliability of the southeast Ohio area electric transmission and distribution network. This infrastructure has reached an age where it is in need of rebuild and redesign to meet the needs of the customers across this region. The Companies have developed a multi-year construction plan that will replace much of the infrastructure in place today.

The focus of the program is to rebuild the area's aged 23 kV infrastructure into a 138 kV network, and redesign the system to improve reliability for customers across the region. Bringing additional power sources into the region will improve electric service reliability and provide the electrical capacity for future economic growth. For the Lamping 345-138 kV station specifically, the purpose is to provide a new power source, by connecting to AEP Ohio Power Company's 345 kV circuit which currently passes through the area. The Lamping transformer will step down the voltage from 345 kV to 138 kV. This strong power source will serve the new 138kV transmission lines planned between the Lamping and the Devola stations. This Project is to improve customer reliability and allow for future load growth. Lamping station is referenced in the 2017 AEP Ohio Transco Long Term Forecast Report (LTFR) document (Case No. 17-1501-EL-FOR) on the list of Proposed Substations on page 59 (table FE-T10). The Project is a Supplemental PJM RTEP project (identifier s1160). The Project is not mandated by PJM.

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.

Exhibit 1-2 in Appendix A shows the proposed Project relative to existing electrical transmission and distribution 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.

AEP Ohio Transco evaluated various land options to identify potential sites for the Project. To determine the location of the proposed Project, the Siting team conducted an initial study to determine a reasonable corridor within which the Project could be constructed. The most appropriate solution for meeting AEP Ohio's future capacity needs in the area was to construct the Project adjacent to an existing 345 kV line that runs laterally (Exhibit 1-1 in Appendix A).

AEP Ohio Transco identified suitable sites within the corridor that would minimize impacts to socioeconomic, ecological, construction, and engineering aspects of the area. Specifically, the selected parcels were the most appropriate option to maximize the availability of existing non-forested land on relatively level ridgetops while minimizing socioeconomic and ecological impacts.

AEP Ohio Transco has worked with property owners of the selected site and has acquired the parcels necessary to proceed with construction of the Project.

B(5) Public Information Program

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

AEP Ohio Transco informs affected property owners and tenants about its projects through several different mediums. Within seven days of 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. Section 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 the public library in each political subdivision affected by this proposed Project. Lastly, AEP Ohio Transco retains ROW land agents who discuss project timelines, construction and restoration activities with affected owners and tenants. As this Project remains entirely on existing AEP Ohio Transco ROW, mail notifications were not sent to land owners, as there was no landowner impact.

B(6) Construction Schedule

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

AEP Ohio Transco anticipates that construction of the Project will begin in October 2017, and the in-service date (completion date) of the Project will be approximately June 2019.

B(7) Area Map

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

Exhibit 1-1 in Appendix A identifies the location of the Project Area on a USGS quadrangle map (Graysville quadrangle). Exhibit 1-2 in Appendix A shows the layout of the station on an aerial image with clearly marked streets, roads, and highways.

To visit the Project from Woodsfield, take OH-26 south for 16 miles to Long Run Road in Graysville. Continue to E Court Street toward N Main Street. Turn left at the first cross street onto OH-26 S/OH-800 S/S Main Street. After 2.3 miles turn right to stay on OH-26 S and follow for 7.2 miles. Turn right onto Long Run Road and follow for 1.2 miles. Turn left onto Dearth Ridge-Rias Run Road and follow for 1.2 miles. Turn right onto Pleasant Ridge Road then turn left onto Dearth Ridge-Rias Run Road. Finally, continue straight onto Floyd Hall Road, and the Project Area is located approximately 200-feet to the southeast.

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 Lamping Station will occur on property owned by AEP Transco Ohio in Washington Township, Monroe County (Parcel IDs: 682149225 and 682148387). In addition, AEP Ohio Transco will obtain an easement for the station access road and project workspace on a property near the proposed substations (Exhibit 1-3). No other property acquisition or easements are required to construct and operate Lamping 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 Project will be constructed on two parcels to be owned by AEP Ohio Transco with a total size of 142.5 acres. The 345 kV Station footprint will be 3.5 acres. The 345 kV station will be set up as a two string breaker and half configuration, with one string fully populated with 4 breakers. The 345 kV yard will also be used to install 345/138 kV transformer. The 138 kV line will be used to power the 138 kV yard breaker and half assembly. The 138/69 kV Station footprint will be 2.8 acres. The 138 kV Yard will be set up as a 138 kV breaker-and-a- half configuration, with an initial placement of two breaker strings, containing two 138 kV circuit terminations. The proposed limit of disturbance (LOD) is approximately 24.8 acres and the two stations will have a combined footprint of 6.2 acres (2.8 acres for the 138/69 kV Station and 3.4 acres for the 345 kV station). The equipment and facilities described below will be installed within the fenced area of the proposed Lamping Station facilities. The preliminary station layout is provided in Appendix B.

Breakers

There will be three (3) 345 kV breakers at the substation. These breakers will be SF6 (sulfur hexafluoride) gas insulated, dead tank breakers. There will be three (3) 138 kV breakers at the substation. These breakers will be SF6 (sulfur hexafluoride) gas insulated, dead tank breakers.

Electrical Assembly

The station is designed as a 345 kV breaker-and-a-half design, with an initial installation of two (2) strings. The station is designed as a 138 kV breaker-and-a-half design, with an initial installation of two (2) strings.

Bus Arrangement and Structures

345 kV

Steel structures will be designed using structural tubing, folded plate tapered tubular, and/or wide flange structures. There will be two (2) bays 345 kV A-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 65 feet in height.

138kV

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 one transformer installed at the station to serve 138 kV system, which will be a 450 MVA, 345 kV to 138 kV transformer located in the 345 kV Yard.

Control Buildings

Two drop in control modules (DICM) will be installed per yard. Approximately the larger DICM (16x27) feet in 345 kV will be installed in the 345 kV yard and the smaller DICM (16x18) feet in the 138 kV yard.

Transmission Line

The project consists of two double circuit 345 kV lines and one 138 kV line. 0.75 mile of double circuit 345 kV transmission line which utilizes 2-pole self-supporting deadend structures and 2-bundle 954 kCM ACSR conductor, and a 0.25 mile single circuit 138 kV transmission line which utilizes single-pole self-supporting deadend structures and 2-bundle 1590 kCM ACSR conductor. Typical structure type drawings are included in Appendix B.

Other Major Equipment

The adjacent yard next to the 138 kV yard will be utilized as the laydown yard for the project; it will be used for future 69 kV station out of the Lamping site.

B(9)(b) Electric and Magnetic Fields

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

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

This section is not applicable. 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 substation 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 capital costs estimate for the proposed Project, comprised of applicable tangible and capital costs, is approximately $25,500,000.

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 Washington Township, Monroe County, Ohio, approximately 1.2 miles southwest of the Village of Graysville. Vegetative communities and land use within the Project area include old field and scrub-shrub, upland forest, and one PEM wetland. Onsite investigation indicates the LOD primarily consists of old field and scrub-shrub habitat, which can be characterized as non-forested grassland that is occasionally disturbed (mowed, grazed, or cleared) and contains a variety of young shrubs, vines, and tree saplings. Upland early successional or second growth forest is also present. One PEM wetland, WSM045, was observed and delineated within the proposed LOD. Additional habitat details are available in the Ecological Resources Inventory Report included as Appendix D.

There are no cemeteries, churches, schools, or other community facilities located within 1,000 feet of the proposed Project location. The nearest residence is approximately 240 feet north of the proposed 138/69 kV Station and 515 feet west of the proposed 345 kV Station (Exhibit 1-3 in Appendix A).

B(10)(b) Agricultural Land Information

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

AEP Ohio Transco's consultant contacted the Monroe County Auditor in May 2017 to obtain information about Agricultural District lands and received the requested data via email on May 12, 2017. The proposed Project will be constructed on two AEP Ohio Transco-owned parcels (Parcel IDs: 682149225 and 682148387), which are listed by the Monroe County Auditor's Office as part of a registered agricultural district. These parcels are not currently used for agricultural production. Construction of the Project will disturb approximately 24.8 acres total on the two parcels, including the 6.2-acre Project and associated grading and access roads (see station grading plan in i).

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 May 2017, AEP Ohio Transco's consultant completed a Phase I Archaeological Survey and an Architectural and Historical Resources impact assessment (Appendix C). Together, these Reports address archaeological and architectural resources in the Project area (see Appendix C). A literature review identified one Ohio Archaeology Inventory site, three Ohio Historic Inventory resources, four cemeteries, and three cultural resources surveys within one mile (1.6 kilometers) of the survey area. None of these cultural resources and/or surveys was located within the Area of Potential Effect (APE) or the survey area.

A Phase I archaeological survey was conducted in May 2017, utilizing both pedestrian reconnaissance and shovel testing within the survey area. One archaeological site, 33MO0194, was identified within the survey area, but not within the APE. Site 33MO0194 is recommended not significant in terms of contributing further information regarding Ohio prehistory and/or history, and no further archaeological work is recommended for this site. In addition, no archaeological sites were identified within the APE and no other archaeological sites were documented within the survey area; therefore, AEP Ohio Transco's consultant recommends no further archaeological work for the Project.

The architectural and historical resources survey conducted in May 2017 identified one resource, the Hall Farmstead, within the APE. Although not a Section 106 project, as a standard practice, background research was conducted on the project area and the identified resource to develop a context for evaluating against National Register of Historic Places (NRHP) criteria, which are used by the Ohio Historic Preservation Office to evaluate historical and architectural significance for state-funded or –permitted projects. In addition to its historical and architectural significance, the Hall Farmstead was evaluated for its level of integrity. Based on the results of this evaluation, the Hall Farmstead is recommended not eligible for listing in the NRHP.

These reports were submitted to the Ohio Historic Preservation Office ("OHPO") on June 14, 2017. The OHPO concurred with the recommendation of no effects on historic properties as a result of this Project on July 6, 2017. The OHPO correspondence letter is included under Appendix C.

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

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

A Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000004, and AEP Ohio Transco will implement and maintain best management practices (BMPs), as outlined in the project-specific Storm Water Pollution Prevention Plan (SWPPP), to minimize erosion and control sediment to protect surface water quality during storm events. The Project has the potential for stream impacts (Appendix D). AEP Ohio Transco will collaborate with the U.S. Army Corps of Engineers if stream impacts are anticipated.

The Project is not located within a Federal Emergency Management Agency (FEMA) 100-year floodplain area (Exhibit 1-2 in Appendix A). 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.

Coordination with ODNR Division of Wildlife ("DOW") was initiated to obtain Ohio Natural Heritage Database records within a 1-mile buffer area around the Preferred and Alternate Routes for the proposed Lamping to Rouse 138 kV Transmission Line Project. Because the Lamping Station Project area was included in this initial consultation, a separate consultation was not initiated for this Project. ODNR records of state- and federally listed species, provided August 4, 2016, did not indicate any state- or federally-listed species occurrences within 1,000 feet of the Project. Information on species obtained from U.S. Fish and Wildlife Service ("USFWS") county lists and the ODNR-DOW Ohio Natural Heritage Database is provided in the Ecological Resources Inventory Report in Appendix D.

The USFWS *Federally Listed Species by Ohio Counties October 2015* (available at www.fws.gov/midwest/ohio/pdf/OhioTEListByCountyOct2015.pdf) was reviewed to determine the threatened and endangered species currently known to occur in Monroe County, Ohio. This USFWS publication listed the following threatened or endangered species as occurring in Monroe County: Indiana bat (*Myotis sodalis*; federally endangered), northern long-eared bat (*Myotis septentrionalis;* federally threatened), eastern hellbender (*Cryptobranchus alleganiensis*; federal species of concern), and bald eagle (*Haliaeetus leucocephalus*; federal species of concern). As part of the ecological study completed for the Project, a coordination letter was submitted to the USFWS Ohio Ecological Services Field Office seeking technical assistance on the Project for potential impacts to threatened or endangered species. The May 24, 2016, email response letter from USFWS (included in Appendix D) indicated that the proposed Project is within the range of the Indiana bat and northern long-eared bat in Ohio, but not within known Indiana bat buffers. If tree clearing occurs between October 1 and March 31, 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 USFWS letter did not include comments specific to the other federally listed species.

Based on the nature of the proposed Project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated. Winter tree clearing will be implemented to reduce impacts to bat species and their habitat. AEP Ohio Transco will coordinate with USFWS and ODNR regarding additional construction requirements, if required by these agencies.

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.

No wildlife management areas or nature preserve lands are located within 1,000 feet of the Project. A parcel of Wayne National Forest – Marietta District, is located approximately 0.25 miles to the northwest of the Project. Correspondence received from the USFWS (Appendix D) indicates that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project area.

The FEMA Flood Insurance Rate Map ("FIRM") was consulted to identify any floodplains/flood hazard areas that have been mapped in the Project Area. Based on this map, no mapped FEMA floodplains are in the Project Area. Therefore, no floodplain permits will be required for this Project.

A review of the National Wetlands Inventory ("NWI") database indicated that one NWI-mapped wetland is present within the Project Area. Wetland and stream delineation field surveys were completed within the defined ecological survey area on June 20, 2016, October 19, 2016, March 7, 2017, and June 6, 2017. The results of the wetland and stream delineations are presented in the Ecological Resources Inventory Report included in Appendix D. One PEM wetland, one pond, and 11 streams (9 ephemeral, 2 intermittent) were identified in the ecological survey area. The area identified by the NWI as a wetland was field-determined to be a pond. Summary information for wetland, stream, and pond characteristics within the Project area is provided in Appendix D. Area (acres) of wetland and length (feet) of streams within the ecological survey area is included; however, these features or portions of these features may not be impacted by Project construction because the ecological survey area is larger than the proposed LOD.

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.

4906-6-07 Service and Public Distribution of Accelerated Certificate Applications

July 7, 2017

A(1) Public Notice

Serve a copy of the application, either electronically or by disk, on the chief executive officer of each municipal corporation, county, township, and the head of each public agency charged with the duty of protecting the environment or of planning land use in the area in which any portion of such facility is to be located. Hard copies shall be made available upon request.

This Letter of Notification is being provided concurrently to the following officials of Washington Township and Monroe County, Ohio.

Washington Township

Mr. Kevin Howell
Washington Township Trustee
740-934-2563
35024 State Route 26
Rinard Mills, Ohio 45734

Mr. Keith Knowlton
Washington Township Trustee
740-213-8349
36568 State Route 26
Graysville, Ohio 45734

Mr. Larry Gardner
Washington Township Trustee
740-934-2812
39085 State Route 26
Graysville, Ohio 45734

Ms. Amy Winland
Fiscal Officer
740-934-2639
36969 Knowlton Lane
Graysville, Ohio 45734

Monroe County Commissioners

Mr. Tim Price
Monroe County Commissioner
101 N Main Street, Room 34
Woodsfield, OH 43793

Mr. Mick Schumacher
Monroe County Commissioner
101 N Main Street, Room 34
Woodsfield, OH 43793

Mr. Carl Davis
Monroe County Commissioner
101 N Main Street, Room 34
Woodsfield, OH 43793

Monroe County Public Agencies

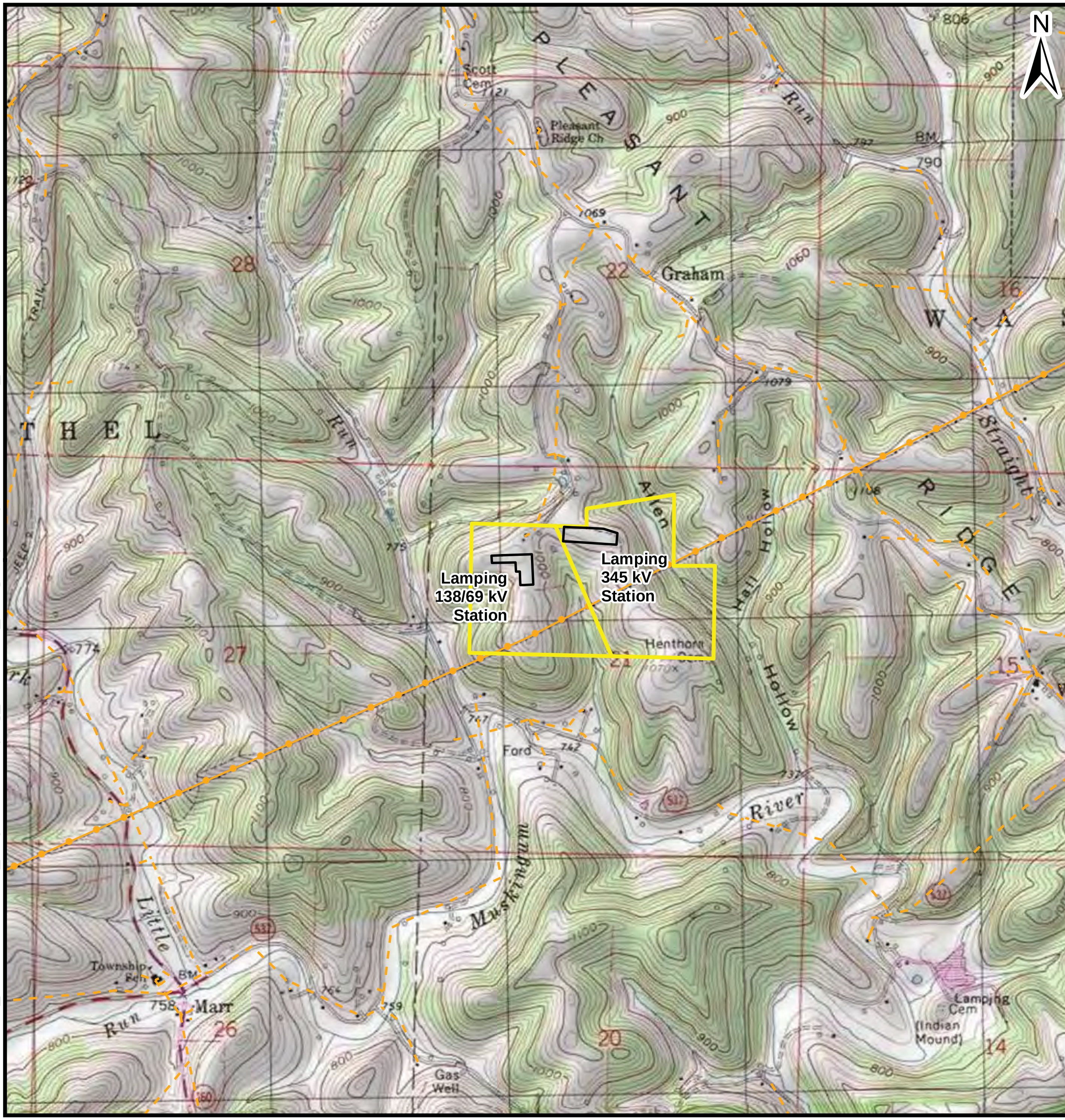
Mr. Phillip Keevert
Monroe County Floodplain Administrator
47069 S.R. 26 North
Woodsfield, Ohio 43793

Ms. Amy M. Zwick, P.E., P.S.
Monroe County Engineer
101 N Main Street, Room 34
Woodsfield, OH 43793

Public Library

Ms. Kathy South, Director
Monroe County Public Library
96 Home Avenue
Woodsfield, OH 43793

Appendix A Project Maps

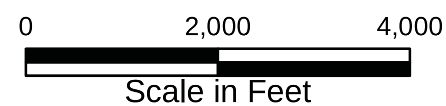


LOCATOR MAP

LEGEND:

- Proposed Station Fenceline
- AEP Ohio Transco-owned Parcel
- WEC Existing Distribution Line
- Existing 345 kV Electric Transmission Line

BASE MAP SOURCE:
USGS 7.5-MINUTE
GRAYSVILLE



AEP OHIO TRANSMISSION COMPANY

Lamping Station Project

EXHIBIT 1-1
USGS TOPOGRAPHIC
OVERVIEW MAP

PN: 667774	DATE: 6/16/2017
CREATED BY: CL	ch2m
REVIEWED BY: SC	

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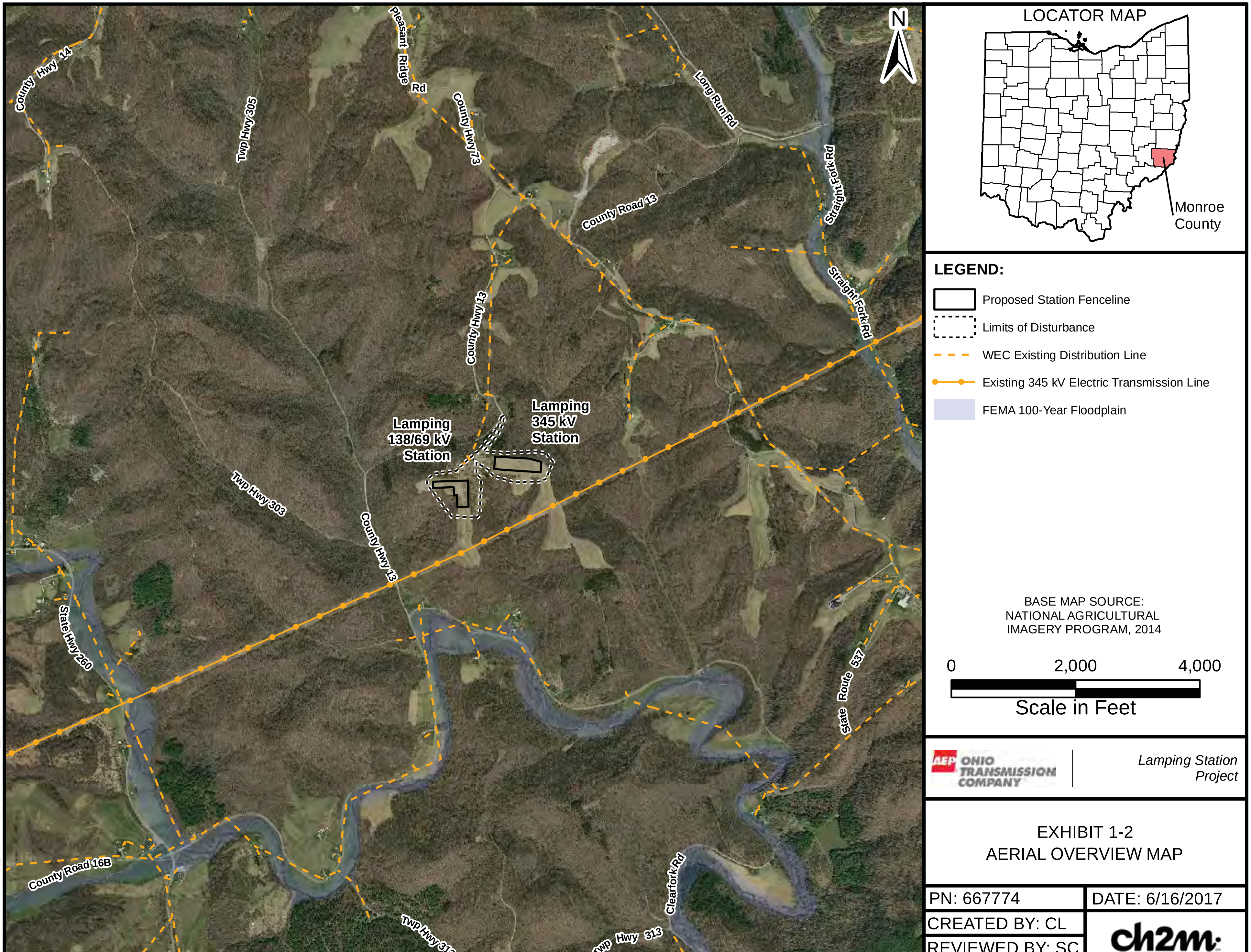

LEGEND:

- Proposed Station Fenceline
- Limits of Disturbance
- WEC Existing Distribution Line
- Existing 345 kV Electric Transmission Line
- FEMA 100-Year Floodplain

BASE MAP SOURCE:
NATIONAL AGRICULTURAL
IMAGERY PROGRAM, 2014

0 2,000 4,000
Scale in Feet

AEP OHIO TRANSMISSION COMPANY

Lamping Station Project

EXHIBIT 1-2
AERIAL OVERVIEW MAP

PN: 667774	DATE: 6/16/2017
CREATED BY: CL	ch2m
REVIEWED BY: SC	

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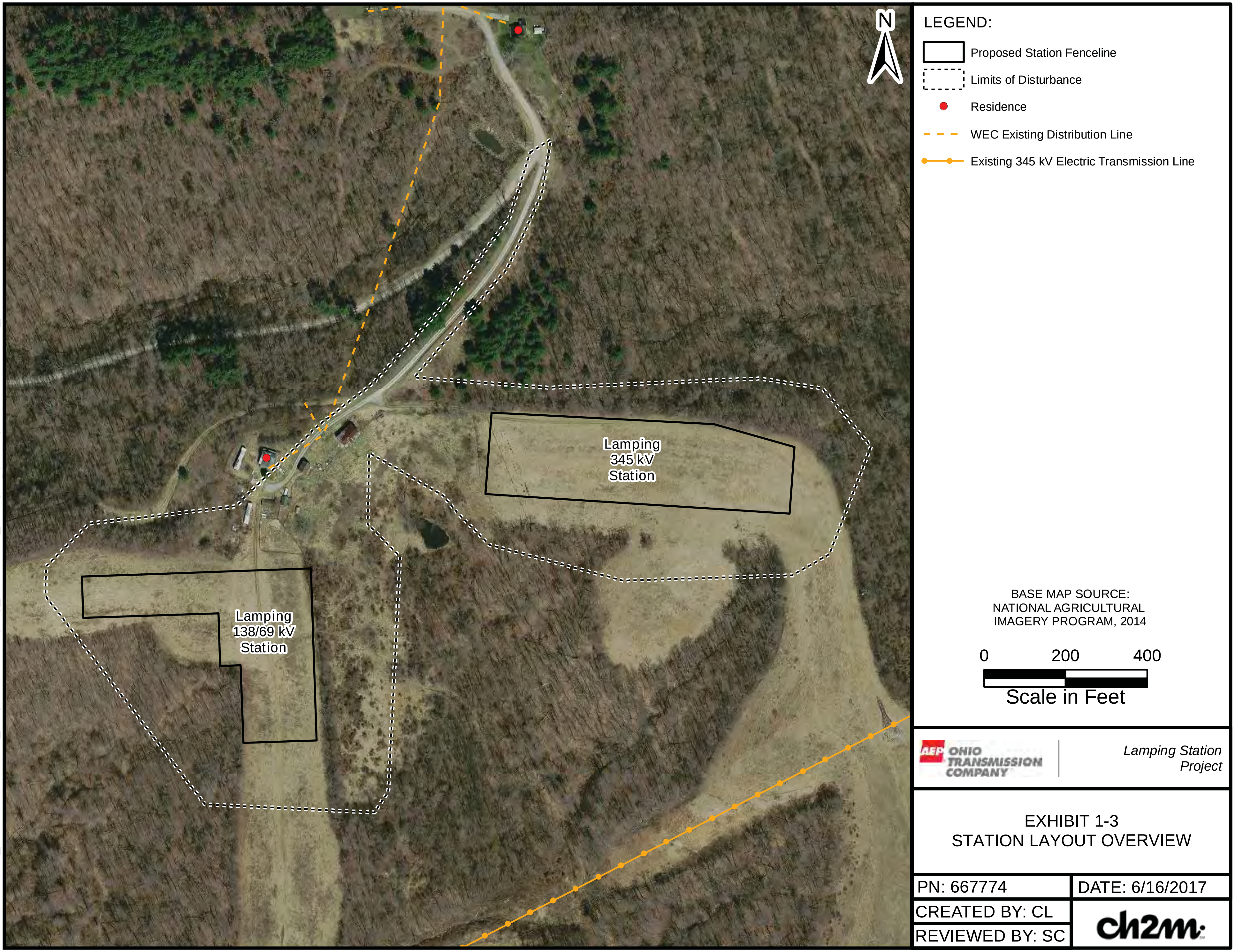


N
LEGEND:
Proposed Station Fenceline
Limits of Disturbance
Residence
WEC Existing Distribution Line
Existing 345 kV Electric Transmission Line
Lamping 345 kV Station
Lamping 138/69 kV Station
BASE MAP SOURCE:
NATIONAL AGRICULTURAL
IMAGERY PROGRAM, 2014
0
200
400
Scale in Feet
AEP OHIO TRANSMISSION COMPANY
Lamping Station Project
EXHIBIT 1-3
STATION LAYOUT OVERVIEW
PN: 667774
DATE: 6/16/2017
CREATED BY: CL
REVIEWED BY: SC
ch2m
\\Brookside\GIS_SHARE\ENBG\00_Proj\A\AEP\Lamping_Substation_Siting\Maps\Report\LON\Exhibit3_20170607.mxd

Appendix B Project Design Drawings

AEP OHIO TRANSMISSION COMPANY

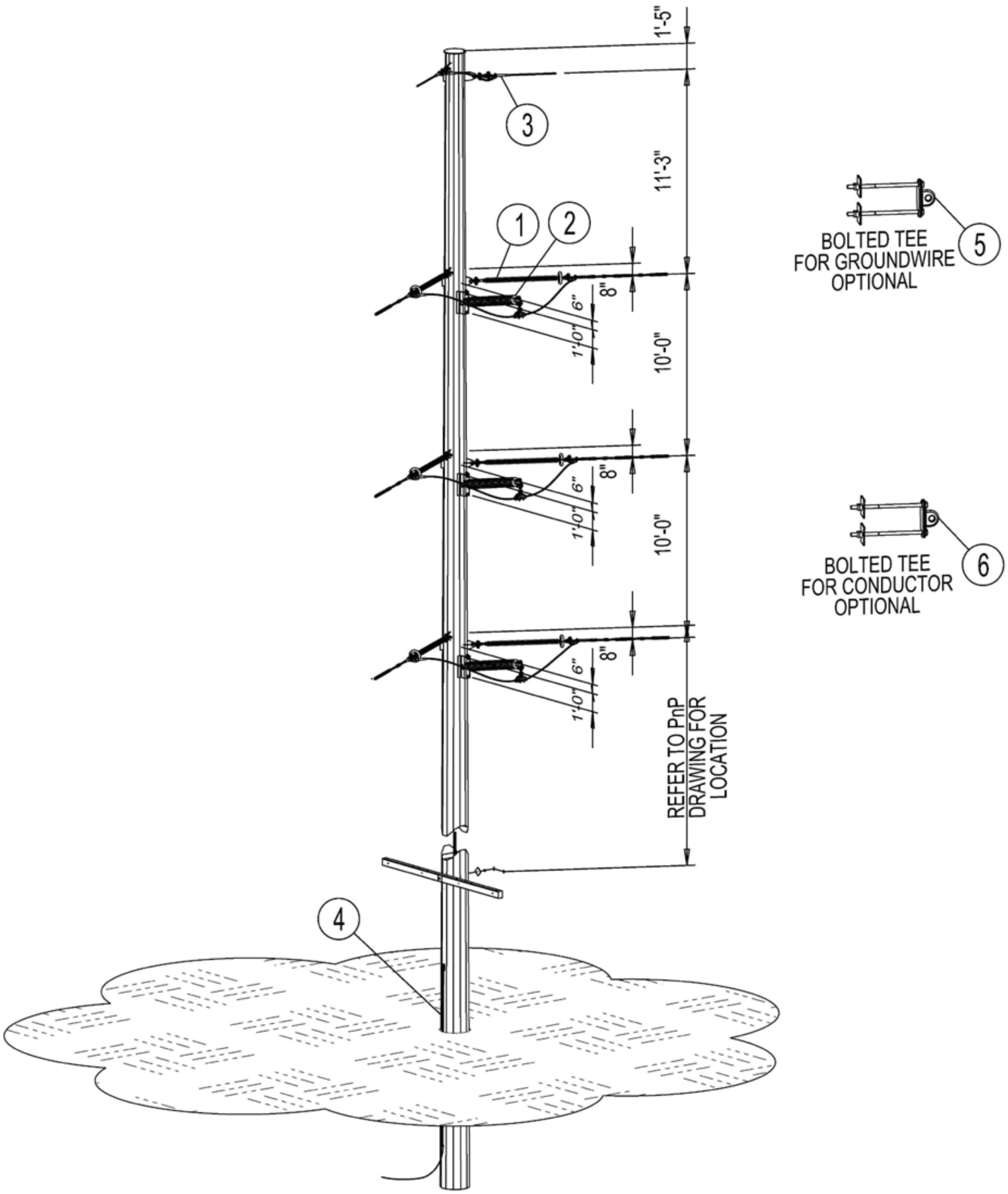
LAMPING STATION PROJECT

WASHINGTON TOWNSHIP
MONROE COUNTY, OHIO

ch2m:

REF. DRAWINGS

ITEM	QTY.	ASSEMBLY	DESCRIPTION	
1	6	14B6-2743	138KV DEAD END INSULATOR, POLYMER, 25K, W/CORONA RING	
2	3	12B5-2728	138KV INSULATOR, POLYMER, HORIZONTAL POST, SUSPENSION W/CORONA RING	
3	2	30D0-1104	OHGW, DEAD-END CONCRETE,STEEL OR WOOD POLE	
4	1	21SE-1456	GROUND ROD FOR DIRECT EMBEDDED STEEL POLE	
5	2	71A0-1231	3/4 IN FLAT DEAD-END TEE	
6	6	71A0-1233	7/8 IN FLAT DEAD-END TEE	



NOTES:

1. T-LINE ENGINEER TO SELECT THE OPTION OF WELDED VANGS OR OPTIONAL BOLTED TEES.

REV	DESCRIPTION	BY	DATE
1	REVISED DRAWING	McP	06/02/16

AMERICAN ELECTRIC POWER

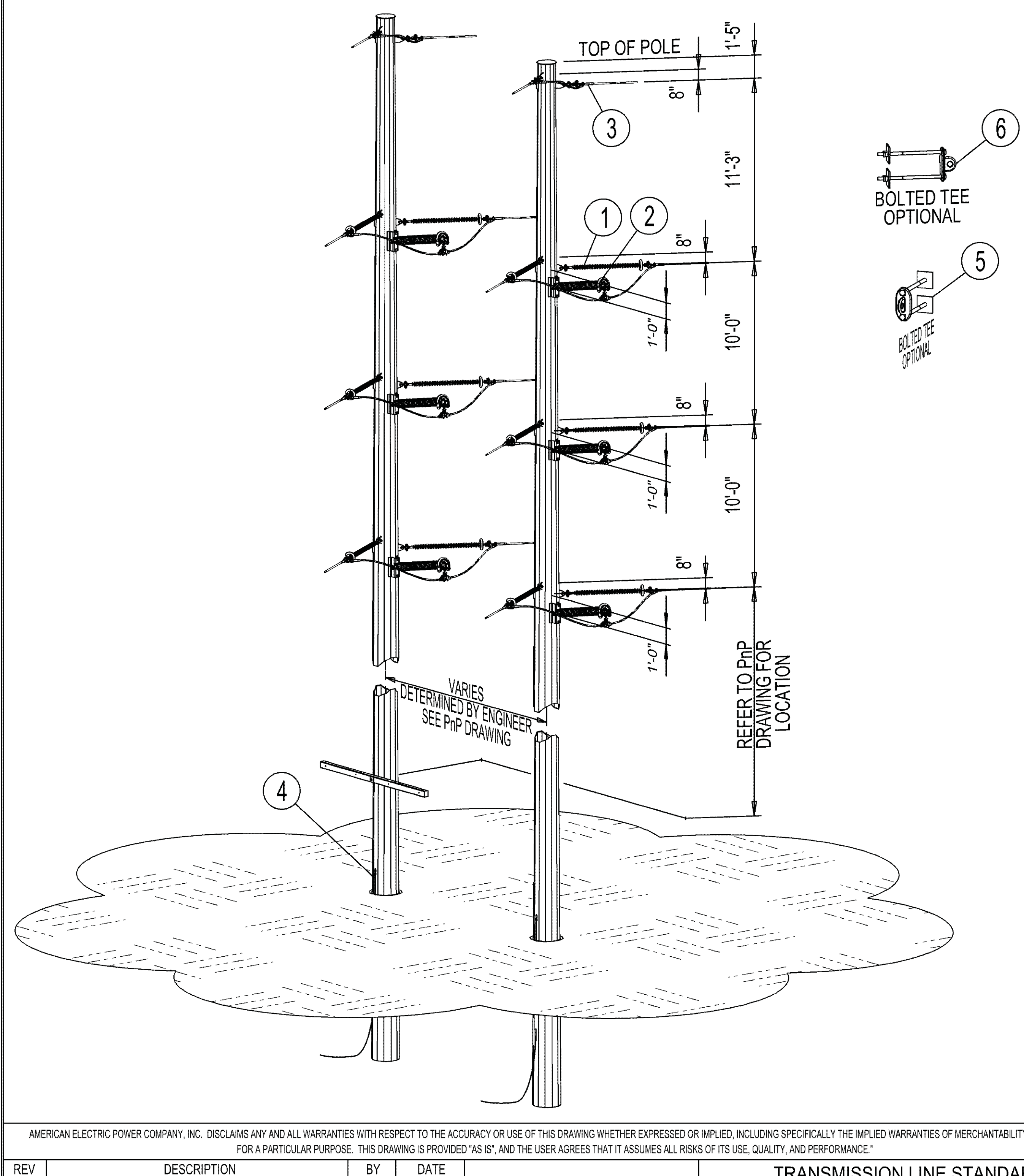
TRANSMISSION LINE STANDARDS

POLYMER - 138KV SINGLE CIRCUIT, LIGHT ANGLE DEADEND W/CORONA RING, JUMPER SUPPORT, SELF SUPPORTING STEEL

ENGR:	DRAWN: SAS	CHECKED: McP	APPROVED: JCN	DATE: 10/22/12	DRAWING No. CS18-2439	SHEET No. 1	REV. No. 1

REF. DRAWINGS

ITEM	QTY.	ASSEMBLY	DESCRIPTION	
1	12	14B6-2743	138KV DEAD END INSULATOR, POLYMER, 25K, W/CORONA RING	
2	6	12B5-2728	138KV INSULATOR, POLYMER, HORIZONTAL POST, SUSPENSION W/CORONA RING	
3	4	30D0-1104	OHGW, DEAD-END CONCRETE,STEEL OR WOOD POLE	
4	2	21SE-1456	GROUND ROD FOR DIRECT EMBEDDED STEEL POLE	
5	12	71A0-1233	7/8 IN FLAT DEAD-END TEE	
6	4	71A0-1231	3/4 IN FLAT DEAD-END TEE	



REV	DESCRIPTION	BY	DATE

AEP AMERICAN ELECTRIC POWER

TRANSMISSION LINE STANDARDS

POLYMER - 138KV DOUBLE CIRCUIT, LIGHT ANGLE DEADEND W/CORONA RING, SELF SUPPORTING, STEEL

ENGR:	DRAWN: SAS	CHECKED: McP	APPROVED: JCN	DATE: 10/30/12	DRAWING No. DS28-2457	SHEET No. 1	REV. No. 0

Archive ID: 904-440

Appendix C Architectural and Historical Resources Report

Phase I Archaeological Survey for AEP Ohio Transco's Lamping Station Project in Washington Township, Monroe County, Ohio

Prepared for

American Electric Power Ohio Transmission Company

Lead Agency

Ohio Power Siting Board

June 2017

400 E Business Way, Suite 400
Cincinnati, Ohio 45241

Report Prepared By:

Crista M. Haag, MA
(Principal Investigator)

Contents

Tables

Figures

Photographs

Acronyms and Abbreviations

AD	Anno Domini
AEP Ohio Transco	American Electric Power Ohio Transmission Company
APE	area of potential effect
BC	before Christ
BP	before present
CH2M	CH2M HILL Engineers, Inc.
DOE	Determination of Eligibility
NRHP	National Register of Historic Places
OAI	Ohio Archaeological Inventory
OHPO	Ohio Historic Preservation Office
PPK	projectile point
Project	Lamping Station Project
SL	Sample Loci

Abstract

On behalf of American Electric Power Ohio Transmission Company (AEP Ohio Transco), CH2M HILL Engineers, Inc. (CH2M) of Cincinnati, Ohio, conducted a Phase I archaeological survey of the proposed Lamping Station Project (Project) in Monroe County, Ohio. The Project requires Letter of Notification (LON) from the Ohio Power Siting Board (OPSB), which is part of the Public Utilities Commission of Ohio (PUCO). As a state-permitted project, the Project is not subject to formal Section 106 review. This Phase I archaeology report details the background research, field strategy, and survey results.

The Area of Potential Effect (APE) considered potential direct Project impacts to archaeological resources. For the Project, the APE was defined as the land proposed for ground disturbance, which included the 24.8 acres (10 hectares) associated with the construction of the two proposed substations. In consultation with the Ohio Historic Preservation Office (OHPO), AEP Ohio Transco agreed to survey a much larger area than that required for construction and operation, which consisted of the parcels owned by AEP Ohio Transco, in addition to access roads (referred to as the survey area in this report). This larger survey area totals 144.4 acres (58.4 hectares), and the APE is encompassed within this larger survey area.

The literature review identified one Ohio Archaeology Inventory (OAI) site, three Ohio Historic Inventory (OHI) resources, four cemeteries, and three cultural resources surveys within one mile (1.6 kilometers) of the survey area. None of these cultural resources and/or surveys was located within the APE or the survey area.

The Phase I archaeological survey was conducted in May 2017, utilizing both pedestrian reconnaissance and shovel testing within the survey area. One archaeological site, 33MO0194, was identified within the survey area, but not within the APE. Site 33MO0194 is recommended not significant in terms of contributing further information regarding Ohio prehistory and/or history, and no further archaeological work is recommended for this site.

In addition, no archaeological sites were identified within the APE and no other archaeological sites were documented within the survey area; therefore, CH2M recommends no further archaeological work for the Project.

SECTION 1

Introduction

On behalf of American Electric Power Ohio Transmission Company (AEP Ohio Transco), CH2M HILL Engineers, Inc. (CH2M) of Cincinnati, Ohio, conducted a Phase I archaeological survey of the proposed Lamping Station Project (Project) in Monroe County, Ohio. This Phase I archaeology report details the background research, field strategy, and survey results.

The purpose of this investigation was to locate and identify archaeological sites within the Project's Area of Potential Effect (APE), using the guidelines from the Ohio Power Siting Board (OPSB) and the Ohio Historic Preservation Office (OHPO). As a state-permitted project, the Project does not require Section 106 consultation. Therefore, these activities are stipulated within state legislation, namely, the Ohio Revised Code, Sections 149:51-149:54. To meet the requirements set for this legislation, several research strategies were employed:

- Background research, specifically a literature review, using the OHPO online mapping system;
- A Phase I archaeology survey of the APE (and the parcels owned by AEP Ohio Transco); and
- A summary of the field results into a Phase I archaeology report.

Please note, that this Project is not under federal jurisdiction and therefore not subject to Section 106 review.

The background research was conducted by Ms. April Greenberg, MA in April 2017. The Phase I cultural resources survey was conducted by staff archaeologist Galen K. Smith, M.A. and three field technicians from May 15 through May 26, 2017. Analysis and report preparation were the responsibility of Ms. Haag, who also serves as the Principal Investigator for the Project.

1.1 Project Description

AEP Ohio Transco proposes to construct two new substations approximately 2.10 miles (3.4 kilometers) southwest of Graysville, Ohio, in Monroe County (Figure 1.1). One substation will be new 345kV electric transmission substation and the other will be a new 138/69kV electric transmission substation. In Ohio, a project of this scope requires Letter of Notification (LON) from the OPSB, which is part of the Public Utilities Commission of Ohio (PUCO).

The total proposed limit of disturbance (LOD) for the Project is approximately 24.8 acres (10 hectares). The footprint for the new 138/69 kV Station is 2.8 acres (1.1 hectares) and the footprint for the new 345 kV Station is 3.4 acres (1.4 hectares) for a combined total of 6.2 acres (2.5 hectares). Remaining portions (18.6 acres or 7.5 hectares) will be used for temporary workspace and access.

1.2 Area of Potential Effect

The APE considered potential direct Project impacts to archaeological resources. For the Project, the APE is defined as the land proposed for ground disturbance, which includes the 24.8 acres (10 hectares) associated with the construction of the two proposed substations. In consultation with the OHPO, AEP Ohio Transco agreed to survey a much larger area, which consisted of the parcels owned by AEP Ohio Transco, in addition to access roads (referred to as the survey area in this report). This larger survey area totals 144.4 acres (58.4 hectares). The APE is encompassed within this larger survey area (Figure 1.2).

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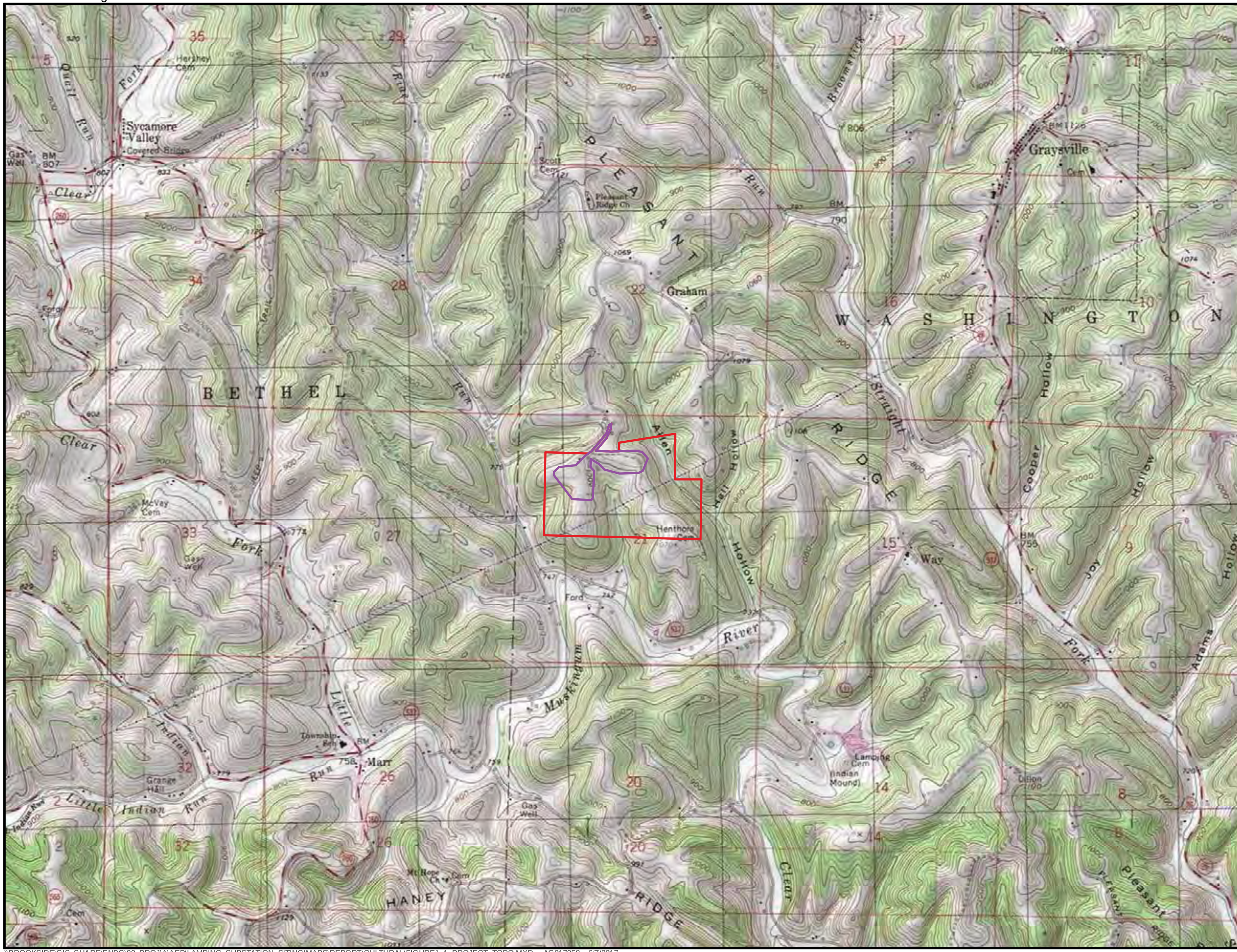

LOCATOR MAP

LEGEND:

- Project APE
- Survey Area

BASE MAP SOURCE:
USGS 7.5-minute Topographic Quadrangle:
Graysville, OH (published 1977)

N

0 610 1,220
Scale in Meters

0 2,000 4,000
Scale In Feet

AEP Lamping Substation Project
Monroe County, OH

FIGURE 1.1
PROJECT OVERVIEW ON A TOPOGRAPHIC MAP

DATE: 6/7/2017
CREATED BY: AG
REVIEWED BY: CH

ch2m

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\A\AEP\LAMPING_SUBSTATION_SITING\MAPS\REPORT\CULTURAL\FIGURE1_1_PROJECT_TOPO.MXD AG017958 6/7/2017

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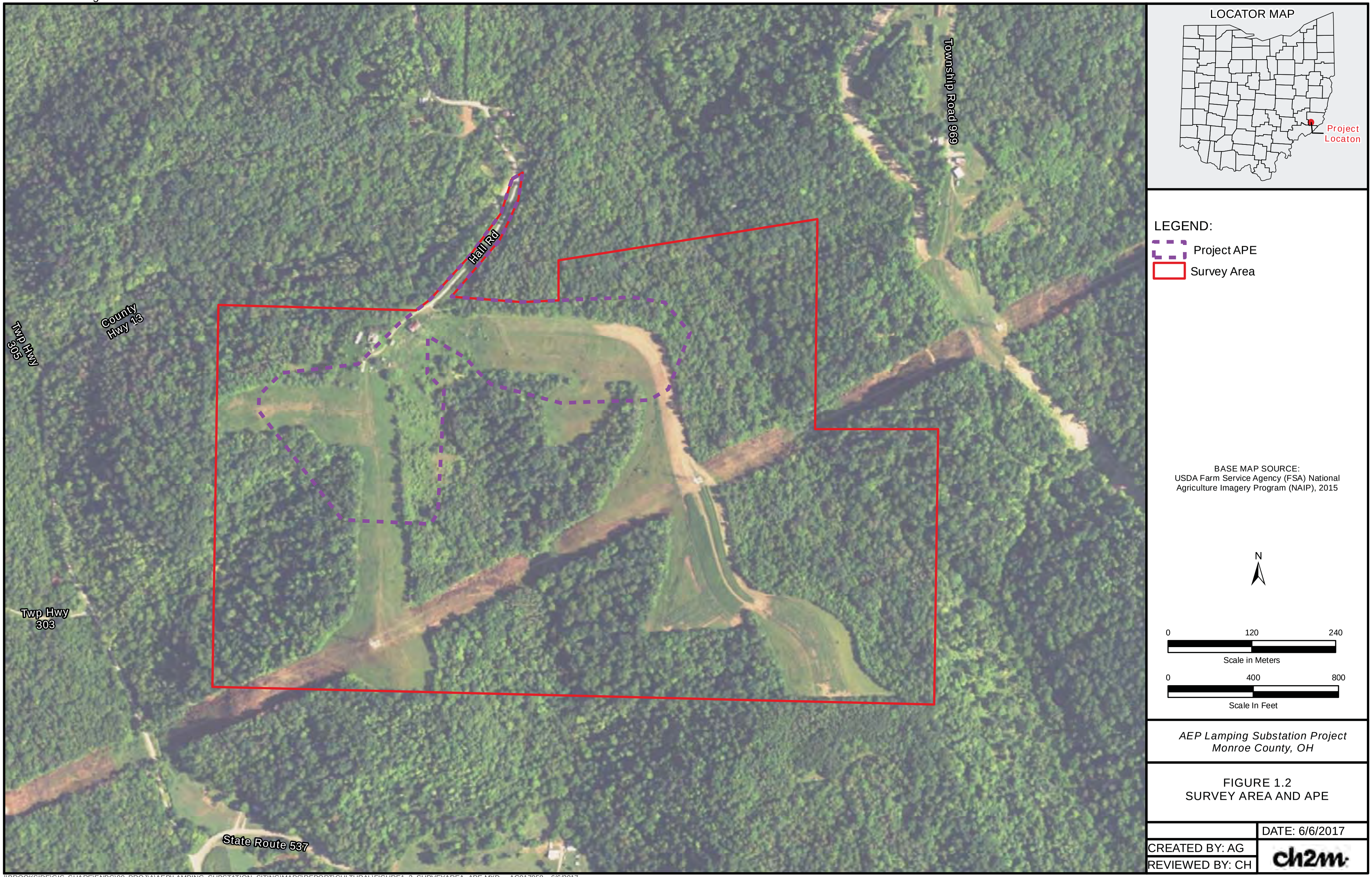

AEP Lamping Substation Project
Monroe County, OH

FIGURE 1.2
SURVEY AREA AND APE

DATE: 6/6/2017
CREATED BY: AG
REVIEWED BY: CH

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1.3 Report Overview

This report contains nine sections. The first section introduces the report and provides a description of the Project and a definition of the APE. Sections 2 through 4 contain background information relevant to the Project, including previously recorded cultural resources data, and environmental and cultural overviews. Section 5 describes the field and analytical methodology, while Section 6 presents the field results. Section 7 provides site descriptions, and Section 8 has a summary and recommendations for the Project. Section 9 lists the references cited throughout the report. Figures and photographs are located within the text, when appropriate.

Background Research and Research Design

CH2M conducted background research using the OHPO online mapping database in April 2017 to locate previously recorded cultural resources and surveys within or near the APE. A one-mile (1.6-kilometer) buffer was used to identify these previously recorded cultural resources and to provide information on the probability of identifying cultural resources within the APE. The OHPO online mapping database included a review of the Ohio Archaeological Inventory (OAI), the Ohio Historic Inventory (OHI), Determination of Eligibility (DOE) files, the National Register of Historic Places (NRHP), historic cemeteries, historic bridges, National Historic Landmarks (NHLs), and previous cultural resources surveys.

The literature review identified one OAI site, three OHI resources, four cemeteries and three cultural resources surveys within one mile (1.6 kilometers) of the survey area. None of these cultural resources and/or surveys was located within the APE or the survey area.

2.1 Ohio Archaeological Inventory Sites

The single previously identified OAI site (33MO0064) is a historic-era, open habitation site located almost one mile (1.6 kilometers) southeast of the survey area. The NRHP status of this resource was not assessed.

2.2 Ohio Historic Inventory Resources

All three OHI resources are located one mile (1.6 kilometers) from the survey area to the northeast and northwest. These resources consist of two single dwellings and one barn dating from 1830 and 1850 (Table 2.1). MOE0041513 and MOE0041613, while recorded separately, are actually interrelated resources (house and a barn). None of these buildings is listed in the NRHP.

Table 2.1. Previously Recorded OHI Sites

OHI Number	OHI Name	Location	Architectural Style	Historic Use	Construction Date
MOE0000514	William Steel Property	Graysville	Vernacular	Single Dwelling	1830
MOE0041513	Dexter Blaney Farm, David Parks Barn	Bethel Township	Vernacular	Single Dwelling, Barn	1850
MOE0041613	Dexter Blaney Barn, David Parks Barn	Bethel Township	Vernacular	Barn	1850

2.3 Cemeteries

The four previously identified cemeteries are scattered throughout the Project area. The closest cemetery is the Henthorne Cemetery, located 7.5 meters (25 feet) from the southeast corner of the survey area. Henthorne Cemetery is a small family cemetery consisting of five graves dating from 1848 to 1914. Other cemeteries within one mile (1.6 kilometers) of the survey area are the Rock Hill-Scott Cemetery, Pleasant Ridge Cemetery, and Flaming Cemetery.

2.4 Previous Cultural Resources Surveys

Three cultural resources surveys were recorded within one mile (1.6 kilometers) of the survey area. Two of the surveys were Phase I archaeological surveys conducted on behalf of the Wayne National Forest (Beamer et al 1994, Whitman et al 1996). From the OHPO online mapping system, only site 33MO0064 was documented (at least within the one mile or 1.6-kilometer buffer for the Project) as a result of these surveys.

One architectural and historical resource survey was also conducted on behalf of the Wayne National Forest (Hardlines 1995). This survey was approximately one mile (1.6 kilometers) northwest of the survey area. OHI resources MOE0041513 and MOE0041613 were identified as a result of this survey.

2.5 Project Research Design

The Project research design was developed based on consultation between AEP Ohio Transco and the OHPO for projects associated with the Marietta Program. The agreed-upon scope of work for new substation projects states that AEP Ohio Transco survey the entire company-owned parcel for archaeological resources. Thus, CH2M surveyed two parcels purchased by AEP Ohio Transco, totaling 144.4 acres (58.4 hectares). The survey area (and APE) was subjected to standard Phase I archaeological survey per OHPO (1994) guidelines.

AEP Ohio Transco also agreed to conduct an architectural and historical resources survey using a 1,000-foot (304.8-meter) buffer around the proposed substation(s). The results of the architectural and historical resources survey will be provided to the OHPO in a separate report for this Project (see Tuk 2017).

SECTION 3

Environmental Overview

This section provides information on the prehistoric and historic environmental setting of the general Project area, to develop a context for understanding the location and identification of cultural resources. Environmental variables (e.g., geology or climate) significantly influenced the type and extent of both prehistoric and historic settlement and subsistence patterns.

3.1 Physiography

The Project is situated within the Marietta Plateau of the Allegheny Plateaus. The Allegheny Plateaus, situated to the south and east of the Glaciated Allegheny Plateaus, is the only area in Ohio not touched by glaciers. As a result, it contains very steep terrain, with the greatest landscape relief in the state. It is dominated by high hills and deep, steep-walled bedrock valleys (Brockman 1998).

3.2 Geology

Within the Allegheny Plateaus, much of the exposed bedrock is erosion resistant Mississippian- and Pennsylvanian-age sandstone. The Pennsylvanian-age bedrock is composed of repetitive layers of sandstone, shale, coal, and clay with an occasional thin layer of limestone (Brockman 1998).

Upper Mercer chert is the primary chert source in the vicinity of the Project area. Upper Mercer chert occurs across eastern Ohio, with major outcroppings in Muskingum, Coshocton, Licking, Perry, and Hocking counties. It is bedded in limestone and occurs as tabular chunks in streambeds (DeRegnaucourt and Georgiady 1998:80). Additionally, Vanport flint, also known as Flint Ridge, is a popular lithic material in the region. Vanport flint outcrops primarily in an area of eastern Licking and western Muskingum counties.

Other available chert sources from eastern and southeastern Ohio include Brush Creek/Crooksville, Upper Mercer, and Zaleski (DeRegnaucourt and Georgiady 1998). Brush Creek/Crooksville chert outcrops in northeastern Vinton County, western Athens County, southern Gallia County, northern Lawrence County, northeastern Perry County, and northwestern Morgan County. It occurs in both primary outcrops and as stream gravels (DeRegnaucourt and Georgiady 1998:38). Zaleski chert outcrops in southern Vinton County and northern Jackson County. Similar to Brush Creek/Crooksville chert, it also occurs in both primary outcrops and as stream gravels (DeRegnaucourt and Georgiady 1998:93).

3.3 Soils

Soil distribution within the Project area are important for understanding the cultural arrangement of the landscape. Soils aid in determining the potential for archaeological sites and can provide a marker for archaeological site formation. Soil types also aid in understanding the pedogenic processes of the area and how archaeological sites and cultural materials are impacted by those processes. For example, within the Allegheny Plateaus, most soils are infertile, which is why this region is less populated and developed than most of the rest of Ohio (Ohio Governor’s Residence and Heritage Garden 2017).

A total of 12 soil types are located within the APE (Table 3.1). Most of these soils have been documented on steep slopes, which occur within the survey area. In addition, some of these soils are moderately eroded.

Table 3.1. Soils within the APE

Soil Symbol	Soil Name
GkD2	Gilpin-Upshur complex, 12 to 18 percent slopes, moderately eroded
GkE2	Gilpin-Upshur complex, 18 to 35 percent slopes, moderately eroded
GkG	Gilpin-Upshur silt loams, 35 to 70 percent slopes
GoC2	Gilpin-Westmoreland silt loams, 6 to 12 percent slopes, moderately eroded
GoD2	Gilpin-Westmoreland silt loams, 12 to 18 percent slopes, moderately eroded
GoG2	Gilpin-Westmoreland silt loams, 35 to 70 percent slopes, moderately eroded
GwG2	Guernsey-Westmore silt loams, 35 to 70 percent slopes, moderately eroded
WtC2	Woodsfield silt loam, 6 to 12 percent slopes
ZnB	Zanesville silt loam, 3 to 8 percent slopes
ZnC	Zanesville silt loam, 6 to 12 percent slopes
ZnC2	Zanesville silt loam, 6 to 12 percent slopes
ZoC2	Zanesville-Woodsfield silt loams, 6 to 12 percent slopes

3.4 Hydrology

The Project area is drained by Allen Hollow on the eastern portion of the survey area and an unnamed drainage on the western portion of the survey area. Both drainages flow directly into the Muskingum River.

3.5 Flora and Fauna

During the Late Pleistocene, the Project area was covered in a coniferous forest consisting of spruce and fir trees, suited for a cool, moist climate (Braun 1950:464). This cool, moist climate also supported a wide array of mammals, including megafauna. Biomes along the glacier's southern margins were exploited by megafauna indigenous to these areas, specifically the woodland musk ox (*Ovibos moschatus*), mastodon and woolly mammoth (*Mammut* sp.), barren ground caribou (*Rangifer tarandus*), giant beaver (*Castoroides* sp.), and moose-elk (*Cervacles scotti*) (Cleland 1966:91-92; Prufer and Baby 1963:55; Ritchie and Funk 1973).

Over the course of several hundred years, climatic moderation gradually altered the glacial-boreal ecosystem in the Midwest. This trend, which occurred sometime around 9000 before present (BP), was typified by a warmer climate with predominantly drier seasons. The megafauna of the Late Pleistocene suffered massive extinction and was replaced by smaller animals that filled the opening faunal ecological niches. These smaller animals are similar to contemporary species.

Also during this timeframe, oak and hickory began to dominate the landscape. At the end of the warming trend, around 4000 BP, the Project area is within the Mixed Mesophytic Forest region (Braun 1950). The Mixed Mesophytic forest is considered the most complex and the oldest association of the Deciduous Forest Formation. It is a community in which the dominant trees are beech (*Fagus grandifolia*), tuliptree (*Liriodendron tulipifera*), basswood (*Tilia heterophylla, T. heterophylla* var. *Michauxii, T. floridana, T. neglecta*), sugar maple (*Acer saccharum*), chestnut (*Castanea dentate*), sweet buckeye (*Aesculus octandra*), red oak (*Quercus borealis* var. *maxima*), white oak (*Quercus alba*), and hemlock (*Tsuga Canadensis*) (Braun 1950:40).

Contemporary faunal resources within the Project area include both open agricultural land and woodland wildlife. It is important to note that several large mammals that would have been important to prehistoric and historic subsistence patterns have been hunted into local extinction, including elk or wapiti (*Cervus elaphas*), bison (a possible Late Prehistoric species), cougar (*Felis concolor*), black bear (*Ursus americanus*), and wolves (*Canis* sp.).

3.6 Climate

Knowledge of past climate is based primarily on palynological evidence that indicates broad floral patterns sensitive to specific climatic characteristics. Eastern United States climatic trends in Late Pleistocene times were shaped by the glaciers that occurred within the Project area from points originating in northern Canada. This sequence developed in the Late Pleistocene, when a moist, cool climate succeeded a drier, cooler period.

Around 8000 BP, a warming/drying trend occurred which is often referred to as the "Hypsithermal" or "Altithermal." This trend profoundly affected vegetation and faunal patterns until 4000 BP. Modern floral and faunal patterns were in place sometime after 4000 BP by the end of the Hypsithermal period. Warm air masses from the Gulf of Mexico influenced the climactic patterns of the region. The major climatic event during the late Holocene is the "Little Ice Age" or the Neo-Boreal episode, which dates from 348 BP to 50 BP. This shift to a cooler climate may have had a dramatic effect on local prehistoric populations, perhaps resulting in a shorter growing season. The impact on Late Prehistoric populations is poorly understood, but some researchers suggest changes in community size and plans, as well as social organization, were a result of this phenomenon.

The modern climate of the Project area is characterized as continental. This type of climate has winters that are cold, snowy, and cloudy, while summers are warm and humid.

SECTION 4

Cultural Overview

This section summarizes the known prehistoric and early historic cultures of eastern Ohio. While a lack of systematic investigation, as opposed to a lack of evidence, is responsible for the current dearth of archaeological information within the general Project area, existing regional data allows some extrapolation. This information provides a context for any sites identified during the Phase I cultural resources survey, to aid in evaluating their state significance.

4.1 Paleoindian Period (14,000 to 8000 BC)

The Wisconsin stage produced the final glacial advance of the Pleistocene into the Project area. Around 17,000 years ago, it began to retreat, opening the area for aboriginal occupation (Prufer and Baby 1963:55). In the Northeast United States, the earliest generally accepted date for cultural material is found at the Meadowcroft Rockshelter in Pennsylvania, with a radiocarbon date (SI-2345) of 14,225 before Christ (BC) to 11,300 BC (Adovasio et al. 1991). Known as Pre-Clovis, sites with these types of earlier dates have not been documented in Ohio. Other possible pre-Clovis sites have been documented in regions surrounding Ohio, where the cultural assemblages are reported within depositional contexts occurring stratigraphically below Clovis layers. Possible pre-Clovis sites in the surrounding environs include the Cactus Hill site in Virginia, the Topper Site in South Carolina, and the Big Eddy site in Missouri (Maggard and Stackelbeck 2008).

The earliest (and currently most accepted) prehistoric occupation in Ohio is the Paleoindian period. The Paleoindian period is recognized as part of a widespread, homogenous New World culture represented by the fluted Clovis projectile point (PPK). The Clovis PPK was used for hunting big game and for penetrating the hides of megafauna. Once the point penetrated the hide, the shaft was easily withdrawn, leaving the point embedded in the prey's body (Frison 1989; Tankersley 1996).

Most Paleoindian sites consist of lithic assemblages including chipped stone knives and scrapers, awls, debitage, and two types of flaking hammers (Tankersley 1996). Analysis of these types of assemblages from sites, such as the Holcombe Beach site in Michigan (Fitting et al. 1966) and the Debert site in Nova Scotia (MacDonald 1968), indicate predominantly hunting, butchering, and hide-working activities. The relative paucity of non-lithic artifacts in many Paleoindian assemblages can most likely be attributed to conditions unfavorable for their preservation.

Although the Paleoindian culture is often viewed as homogeneous, it appears that there was a variety of adaptations in different regions (Meltzer 1984, 1985, 1988; Meltzer and Smith 1986). Within the Great Lakes and eastern Midwest region, the rapidly changing environment supported open grazing lands and boreal forests along the glacier's margins that would have contained woodland musk ox, mastodon, barren ground caribou (*Rangifer tarandus*), woolly mammoth, giant beaver, and moose-elk (Cleland 1966:91-92; Prufer and Baby 1963:55; Ritchie and Funk 1973). This type of environment, in addition to providing large numbers of animals, also provided Paleoindians a good opportunity to monitor and exploit them (Kelly and Todd 1988). For example, in western New York, the remains of mastodon, caribou, moose-elk, and California condor (*Gymnogyps californianus*) have been recovered at a site dating between 9240 BC and 9140 BC (Laub et al. 1996). In order to hunt these animals, Paleoindians groups were small and highly mobile with large territories (Tankersley 1989).

In the Midwest and Northeast United States, Paleoindian sites are typically located on hilltops and bluffs overlooking open portions of main river valleys and larger tributary valleys, and frequently occur at the confluence of rivers on high Wisconsin-age terraces. Seeman and Prufer (1982) have identified three variables which they believe influence the location and recovery of Paleoindian artifacts:

1. Fluted points tend to be recovered in major stream valleys and at confluences.
2. They often occur in close proximity to good quality chert sources.
3. Paleoindian fluted points are rarely found in the swampy bottomlands or rugged highlands such as the unglaciated portions of southeastern Ohio (i.e., the Project area).

Toward the end of the Paleoindian period, the warming climate altered the flora and fauna. For example, megafauna was now extinct, so later Paleoindian groups had to focus on smaller game, such as white-tailed deer, bear, and turkey (Tankersley 1996). The emergence of more specialized ecological adaptations marks the end of the Paleoindian period and the beginning of the Archaic.

4.2 Archaic Period (8000 to 1000 BC)

The Archaic period spans 7,000 years and refers to the archaeological remains of post-Pleistocene hunter-gatherers that did not make or use pottery (Stoltman 1978:708). The change in climatic conditions and available food resources led to dramatic changes in subsistence and settlement strategies, quite different from the Paleoindians (Stafford 1997). The Archaic period is divided into three subperiods (Early, Middle, and Late) based on temporal, technological, social, subsistence, and settlement criteria.

4.2.1 Early Archaic

The consolidation of resources into area-specific zones would have allowed Early Archaic groups to schedule the procurement of subsistence items as they became available. This type of strategy would not have been possible in a mosaic environment, where resources occurred in undifferentiated and, thus, more random locations. Archaic inhabitants lived in this developing system, and their subsistence and settlement patterns reflected the changing environmental conditions.

During the Early Archaic period, circa 8000 to 6000 BC, the expanding deciduous forests produced a more favorable habitat for game species, particularly the white-tailed deer (Cleland 1966:92). Concurrently, there was a shift from the Paleoindian lanceolate fluted points to smaller more diversified types, such as bifurcates, including the MacCorkle, LeCroy, and Kanawha points or knives. Woodworking and milling tools were added to the assemblage, including axes, gouges, drills, and grinding stones (Chapman 1975:6; Jennings 1978:12). For example, the St. Albans site, south of the Project area in Kanawha County, West Virginia, is a deeply stratified site adjacent to the Kanawha River (Broyles 1971). Projectile points recovered from this site included Charleston Corner-Notched, Kirk Corner-Notched, MacCorkle, St. Albans, LeCroy, and Kanawha forms (Broyles 1971:49). Other lithic tools recovered included chipped hoes, scrapers, blades/knives, hammerstones, and drills (McMichael 1968:8). Eleven C^{14} dates have dated the St. Albans site from 7900 BC to 6210 BC (Broyles 1971).

Early Archaic groups were small and mobile, gradually becoming more geographically restricted as seasonally oriented hunting and gathering activities were focused on smaller, more well-exploited territories. A narrow yet nutritious spectrum of plant foods seems to have been utilized, with deer hunting being the major subsistence activity (Chapman 1975:232-233; Cleland 1966:92). Occupational preferences appear to have centered on the uplands; however, some utilization of resources near major waterways existed as well. Early Archaic sites tend to be small and scattered, limited to surface discoveries, and usually located in uplands near secondary stream valleys (Benchley 1975), while larger sites (e.g., St. Albans site) are most likely to occur near waterways.

4.2.2 Middle Archaic

During the Middle Archaic period, circa 6000 to 3000 BC, the continuing improvement in the climate led to a greater variety of available resources. The diversification of subsistence-related activities increased and an emphasis on the exploitation of seasonal resources began to grow in importance. The Middle

Archaic economy became more diffuse, with an emphasis still on deer hunting, but with utilization of a wider variety of plant foods (Cleland 1966:92-93). Specialization in certain activities generated a more complex social structure within the band network as evidenced by what Griffin (1978:229) calls the early indication of "status differentiation among the band members."

The material remnants of Middle Archaic culture expanded to reflect the increasingly sophisticated technology adapted to the intensive exploitation of forest and riverine biomes. The Early Archaic bifurcate point types in Ohio appear to have been replaced by a widespread tradition of large side-notched points, including types such as the Raddatz or Godar (Justice 1987:60-71). There was an increase of ground and polished stone tools, full grooved axes, pendants, and winged and cylindrical bannerstones used as atlatl weights. Bone tools begin to appear in the artifact assemblage (Chapman 1975:6; Griffin 1978:133), although it is almost certain that bone tools were in use previously, but are only found in significant numbers after the Middle Archaic for taphonomic reasons.

Middle Archaic sites are usually found along major waterways, where artifacts reflect a reliance on aquatic resources, and an unusually high number of bone tools are often present. Floral and faunal remains indicate that nuts, white-tailed deer, turkey, and passenger pigeon (*Ectopistes migratorius*) predominated in the diet (Cantley and Novick 1980).

4.2.3 Late Archaic

In the Late Archaic period, circa 3000 to 900 BC, the expansion of deciduous forest reached its most northern limit around 2000 BC, and the climate was warmer than present day (Cleland 1966:93). Coinciding with an increase of territorial permanence was the appearance of regional cultural adaptations exemplified by the Glacial Kame, Red Ochre, and Old Copper cultures (Cleland 1966). A wider array of specialized objects was used during the Late Archaic such as steatite and sandstone bowls, stone tubes and beads, polished plummets, net sinkers, whistles and rattles, birdstones, boatstones, and bone awls, needles, and perforators (Chapman 1975:6). Ceremonialism became increasingly important as evidenced through more elaborate, formalized mortuary practices and the presence of exotic burial goods that were procured through emerging trade networks (Chapman and Otto 1976:20).

The generally accepted model for Late Archaic settlement and subsistence patterns is that of mobile, hunter-gatherers with a band level social structure (Jobe 1983). The size and composition of these mobile groups would vary in accordance to the distribution and availability of resources across the landscape and through the seasons (Boisvert 1986). During the spring and summer, the exploitation of shellfish, fish, turtles, migratory birds, and other aquatic resources produced concentrations of sites that can be characterized as small camps on slight knolls. Winter campsites were situated above the valleys for the effective exploitation of upland game such as deer, other medium-sized mammals, and birds.

The first evidence of cultigens is associated with this period. In Missouri and Kentucky, they occur as early as 2300 BC (Chomko and Crawford 1978:405). At Salts Cave, chenopodium (*Chenopodium* spp.), sunflower (*Helianthus annuus*), and yellow flowered gourd squash seed (*Cucurbita pepo*) were reported dating approximately to 1500 BC (Yarnell 1973). Sumpweed (*Iva annua*), sunflower, chenopodium, and maygrass (*Phalaris caroliniana*) remains were recovered from human paleofeces dating to 1150 BC at Hooton Hollow, a rockshelter in eastern Kentucky (Gremillion 1996).

4.3 Woodland Period (1000 BC to AD 1000)

The transition from the Archaic to the Woodland period is typically marked by the development of ceramic technology and the use of ceramic vessels as part of everyday life. Other characteristics include earthwork construction, elaborate mortuary ceremony, and food production (Griffin 1952, 1967; Applegate 2005). The Woodland period is divided into three subperiods: Early, Middle, and Late.

Although divided into three subperiods, the Woodland period has a greater number of cultural phases and spatially discrete recognized societies.

4.3.1 Early Woodland

The Early Woodland period, circa 1000 to 200 BC, appears to represent a continuation of traditions from the Late Archaic (Brown 1986:599). However, there appears to be a greater tendency toward territorial permanence, as well as an increasing elaboration of ceremonial exchange and mortuary rituals. Burial practices, which formed the core around which Early Woodland mortuary complexes evolved, were practiced throughout the Archaic and persisted into the Early Woodland (Webb 1947; Griffin 1968:133-134). Food production also increased within the Early Woodland with hunting and gathering being supplemented by the domestication of various native and non-native cultigens like sunflower and chenopodium (Struever and Vickery 1973).

In the Middle Ohio Valley, the Early Woodland period is often associated with the Adena culture. Identifiers of the Adena include vertical or conical mounds, enclosures, the use of pottery, special artifact forms, and features found within, under, and around mounds (Chapman and Otto 1976:21; Clay 1998a; Greber 2005:24). The Adena were most likely hunter and gatherers (like Late Archaic peoples), while utilizing some gardening (Greber 2005:24).

Clay (1998b:6) states that “settlement data suggest low population density, mobility, and an absence of settlement nucleation” for Adena populations, making them semi-sedentary like Late Archaic peoples. Sites occur not only on floodplain settings, but also in the uplands, and there tends to be a spatial distinction between ritual and domestic sites (Greber 2005). Per Clay (1998b), the main difference between the Adena culture and Late Archaic cultures would be the increase in mortuary ritual.

The type site for the Adena culture is the Adena Mound located near Chillicothe, in Ross County, Ohio. The mound itself is conical in shape, measuring 27 feet tall and 140 feet in diameter. Excavated in 1901, artifacts recovered from the mound included copper bracelets and rings, slate gorgets, spear points made from Flint Ridge flint, bone and shell beads, and an effigy pipe (Mills 1902). Made from catlinite or pipestone, the effigy pipe was a tubular smoking pipe carved in the shape of a man wearing a decorated loincloth and a feather bustle (Mills 1902). In addition, 36 human individuals were recovered (mostly adult males), with the first male interment positioned at the bottom of the mound in a gravel-lined pit. It is believed that burial mound construction began with this first individual, probably an important person and/or leader. Subsequently, additional burials were added to the mound over time, thus increasing the size of the mound. Radiocarbon dating from tree bark found inside the mound dates the site between 140 BC to Anno Domini (AD) 40 (Lepper et al. 2014).

The most well-known Adena mound in the Ohio Valley is the Grave Creek Mound, located northeast of the Project area in Moundsville, Marshall County, West Virginia. The mound stands approximated 62 feet high and 240 feet in diameter and was historically the center of a large earthworks complex along the terrace of the Ohio River (Dragoo 1963). All but the central mound has been destroyed. Excavations of the mound revealed two timbered burial vaults containing three burials, as well as well as an assortment of grave goods.

Although most Adena sites are burial mounds, many sites in the central Ohio Valley (as well as a few other regions) have, in addition to the burial mounds, large and largely unexplained earthworks. These range in shape from circles to squares to pentagons and sometimes enclose large fields and/or conical or domed burial mounds.

In terms of cultural material, several types of ceramics are commonly associated with the Adena culture: Marion Thick, Half-Moon Cordmarked, Fayette Thick, Adena Plain, and Montgomery Incised. In the upper Ohio Valley, the predominant ceramic ware is Half-Moon Cordmarked. These ceramics generally appear around 1000 BC and are characterized by thick walls with crush rock tempers. Finely manufactured leaf-shaped blades and a variety of stemmed projectile points, such as Cresap, Robbins, Adena, Forest Notched, and Kramer, occur along with tubular pipes, quadraconcave gorgets, pendants of banded slate materials, full-grooved axes, hematite celts, and incised stone tablets (Chapman and Otto 1976:21). Copper was used to fashion ornaments such as beads, bracelets, rings, gorgets, and reels (Potter 1978).

4.3.2 Middle Woodland

The Middle Woodland period, circa 200 BC to AD 400, is often defined with reference to the "Hopewell." There has been much debate as to what is "Hopewell" and whether it should be defined as a phase, culture, interaction sphere, etc. (Applegate 2005). However, defined, it represents a period of complex sociocultural integration across regional boundaries via networks of trade from western New York to western Missouri, and from the Gulf of Mexico to Lake Huron. Mayer-Oakes (1955:15) and Griffin (1978:246) recognized two dominant complexes existing during the Middle Woodland: one, known as Hopewell, in southern Ohio, and the other, comprising the Havana societies, in the Illinois River Valley and adjacent areas. The Ohio Hopewell is often recognized by zoned and rocker stamped pottery, bladelets, platform pipes, obsidian artifacts, mica and copper cutouts, Copena bifaces, conjoined geometric enclosures, hilltop enclosures, and horizontal cemeteries (Applegate 2005:14).

The main difference between the Early and Middle Woodland periods was a change in mortuary practice. No longer were conical mounds being used as cemeteries; instead, the dead were being processed and laid to rest on or near the floors of mortuary ceremonial structures (Burks 2005:44). Middle Woodland mounds were constructed over destroyed or dismantled buildings, and additional burials were rarely interred within these mounds after initial construction was completed (Greber 1983; Burks 2005). There also appears to be massive earthen enclosure construction at this time.

Trade networks within the Middle Woodland were more extensive, and materials used in the manufacture of ceremonial objects were acquired from various regions of North America:

- Copper and silver from the Upper Great Lakes.
- Quartz crystals and mica from the Lower Allegheny mountain region.
- Obsidian and grizzly bear teeth from the west.
- Shark and alligator teeth, marine shell, and pearls from the Gulf Coast region (Prufer and Baby 1964:75).

These materials were obtained most likely through a variety of ways including personal travel, gifts (formal and informal), bartering, and personal/group activities (Greber 2005:23).

Some of the ceremonial artifacts that were produced include obsidian knives and blades; stone platform pipes with human and animal effigies; copper breast plates, ear spools, and celts; mica zoomorphic and geometric shapes; and highly decorated ceramic vessels (Jennings 1978:233). The greatest number of these ceremonial objects has been recovered from the Scioto and Little Miami River Valleys (Greber 2005:23). Diagnostic PPK types attributed to the Hopewell are Snyders points, Hopewell leaf-shaped blades, and small side-notched points without basal grinding. Prismatic bladelets and associated polyhedral cores are also considered diagnostic lithic materials. Most of these lithics were manufactured from high quality chert, another important trade commodity (Chapman and Otto 1976:23; Mayer-Oakes 1955:15).

Middle Woodland subsistence was based on hunting and gathering and small-scale agriculture. The use of cultivation most likely varied by region and by time. Prevalent cultigens within Hopewell sites include components of the Eastern Agricultural Complex - maygrass, erect knotweed (*Polygonum erectum*), and chenopodium (Wymer 1997). Other significant cultigens include sumpweed, sunflower, and yellow flowered gourd squash. Significant wild species include hickory nuts (*Carya* spp.), black walnut (*Juglans* *nigra*), butternut (*Juglans cinera*), acorn (*Quercus* spp.), and hazelnut (*Corylus americanus*). Cultivation and wild plant gathering provided for the majority of the Middle Woodland diet, but were complimented by hunting and fishing. White-tailed deer were often hunted, along with black bear, elk or wapiti, and beaver (*Castor Canadensis*) (Griffin 1968).

Settlement patterns in the Middle Woodland are much debated, especially in terms of the degree of mobility. Within the central Ohio River Valley, it appears that there were small Hopewell occupations, usually part of larger multicomponent sites located along old oxbow levees or similar locations (Greber 2005:24). This fits with a model proposed by Dancey and Pacheco (1997) known as the "Dispersed Sedentary Community Model." The model is based on the concept of isolated households dispersed across the landscape, usually organized around regional drainages. These small settlements are widely dispersed to allow for a subsistence strategy, which combines horticulture and hunting/gathering. Other components of the settlement pattern include: "outlying camps, public works, and symbolic places" (Dancey and Pacheco 1997:8). The hamlets belong to a "ritual precinct," a ceremonial center of burial mounds and earthworks, which provide a focus for ceremonial activities and, possibly, trade and interaction with groups of other "ritual precincts."

4.3.3 Late Woodland

The beginning of the Late Woodland coincides with the collapse of the Hopewell culture. The exact reason for the collapse is unknown; however, many reasons have been suggested. Cleland (1966:94-95) theorized the breakdown of territories and intergroup contacts was due to the concentration upon one subsistence activity, a focal agricultural economy. Farnsworth (1973) also suggests a similar hypothesis that a new subsistence strategy based on maize agriculture resulted in greater dietary self-sufficiency and less reliance on an exchange-redistributive network. Dancey (1996) explains the breakdown as the result of a redirection of energy toward intensification of labor and community aggregation. The aggregation of the communities negated the need for ritual ceremonial centers, and the construction and maintenance of the earthworks lapsed.

Therefore, the Late Woodland (circa AD 400 to AD 1000) is often characterized by what it lacks when compared to the Middle Woodland period, including a reduction in earthwork construction and interregional trade (Applegate 2005). The Late Woodland is also marked by the presence of cordmarked pottery, nucleated circular villages, and side notched points (Applegate 2005).

Several different pottery types characterize the Late Woodland in central and southern Ohio. Peters series ceramics are primarily cordmarked and tempered with flint/chert. There are also Chesser series ceramics, which are also cordmarked, but tempered with limestone (Prufer and Baby 1964:12; Prufer and McKenzie 1966:241). Lithic assemblages are represented by triangular projectile points, Raccoon Notched, and Chesser Notched points.

In the Hocking Valley of southeastern Ohio, Late Woodland settlements are often associated with the Chesser Phase. These settlements were large, semi-permanent farm villages located on Illinoian and Wisconsinan terraces of the main river valley with satellite fall and winter hunting stations in rock shelters along nearby tributary valleys (Shane and Murphy 1967:333). The utilization of upland and bottomland sites during the Late Woodland is suggestive of the dichotomous settlement system documented for early historic groups in the Plains and northeast United States. This system is composed of two distinct types of sites occupied on a seasonally interchangeable basis. During the summer, a base camp or village is established with habitation structures and cultivated fields and is reoccupied from year to year. After the harvest, these sites would be temporarily abandoned for hunting camps in the nearby forests. This major territorial reorganization, between the Middle and Late Woodland periods, indicated the gradual restriction of the total catchment area, thus suggesting more spatially confined and more autonomous social units.

Towards the end of the Late Woodland period, there is an increase in maize agriculture, complex village societies, platform mound construction, decorated and shell tempered pottery, and social status among individuals (Appplegate 2005, Burks 2005). These changes mark the end of the Late Woodland and the beginning of the Late Prehistoric period.

4.4 Late Prehistoric (AD 1000 to AD 1750)

Within the Project area, the Late Prehistoric corresponds with the Fort Ancient. In general, Fort Ancient dates from AD 1000 to AD 1750, and encompasses an area that includes the southeastern edge of Indiana, the southern one third of Ohio, central and eastern portions of Kentucky, and western West Virginia (Henderson 2008:739). In contrast to the preceding Late Woodland period, Fort Ancient sites are marked by an increase in village size and an intensified focus on cultivation of staple domesticates: corn, beans, squash, and sunflower. Although contemporaneous with classic Mississippian manifestations observed further to the west, Fort Ancient lacks the monumental earthwork architecture and complex settlement hierarchy exhibited by these societies. However, there were certain similarities with Mississippian cultures, including ceramic attributes such as thick strap handles, incised guilloche designs, and the use of shell-tempering; new architectural styles; new crops (e.g., beans); and ceremonial traits (Brose 1978).

The earliest stages of settlement in the Fort Ancient period apparently involved the *in situ* “adaptational responses of local populations that were becoming increasingly dependent on agriculture and increasingly sedentary (Henderson 2008:745).” During the Early Fort Ancient period, the household was often the basic node in the settlement system, which Pollack and Henderson (1992) have compared to Johnson and Earle’s (1987) family/hamlet pattern. For this pattern, kinship was the organizing principal, and settlements would have been made of related households. Leadership would have been context specific and minimal.

Earlier Fort Ancient villages consisted of a single row of rectangular houses (≈ 20 by 30 feet) surrounded by an oval stockade with the central area of the village left open (McMichael 1968:37). The houses were constructed with saplings then covered by hide or bark with two central posts for support. Often there is a basin-shaped fire pit within the house.

After 1400 AD, a seasonal cycle of congregation in large villages during the summer and dispersal into smaller camps during the winter starts to occur. Status differentiation among individuals becomes more pronounced with time, as indicated by materials interred with burials as grave goods. Over time, traits differentiating local Fort Ancient manifestations recede as wider regional traits gain emphasis. Extra-regional trade becomes more pronounced. These developments are concurrent with the emergence of the Late Fort Ancient.

Pollack and Henderson (1992) propose that the larger Late Fort Ancient villages were the result of two or more smaller villages combining into one larger community. Inherent to this construct is the perception that political power becomes more focused and permanent, analogous to the classic Big Man Society (Johnson and Earle 1987). In later villages, the site size is larger with several rows of houses. The houses are still rectangular, but much larger as well (≈ 25 by 60 feet long) with three central posts for support (McMichael 1968:37).

Earlier Fort Ancient graves are often in a flexed position buried within the village. Grave goods include strings of bone beads and cannel coal pendants, sandstone discs, and plain, shell-tempered pottery. Later in the Fort Ancient period, burials start occurring within the houses, underneath the floors. Bodies are often extended with no associated grave goods (McMichael 1968:39).

Fort Ancient subsistence patterns appear to have developed early in the Fort Ancient period, stabilizing quickly and then remaining unchanged for the remainder of the cultural sequence (Henderson 2008; Rossen 1992). Henderson (1998:527-528) suggests, however, that as Fort Ancient villages increased in size, that this trend may be linked to more intensive subsistence practices. Overall, maize, beans, and squash were primary components of the Fort Ancient diet, but gourds, tobacco, and sumac were also utilized. Compared to the Late Woodland and Mississippian cultures there was less use of such plants as chenopod, maygrass, and marsh elder (Rossen 1992:208). Wild plants, such as fleshy fruits and weedy plants, were still collected, although there was a strong decrease in nut collecting when compared to the Late Woodland (Rossen 1992:208).

Artifacts associated with Fort Ancient sites include shell-tempered pottery that can be cord-marked or plain, pottery elbow pipes, pottery discs, figurines of humans and animals, pottery pestle shaped objects, celts, triangular projectile points, teardrop shaped endscrapers, and drills (McMichael 1968:40-43). Bone tools similar to the Monongahela culture (contemporary with Fort Ancient, located to the northeast of the Project area) were also utilized, in addition to mussel shell, which was used to make beads, pendants, and hoes.

By AD 1650 to AD 1700, Fort Ancient sites have European trade goods appearing in their artifact collections. These trade goods included glass beads, brass kettles, iron objects, and tinklers or janglers. These objects probably were the result of indirect trade by Native American traders with European settlers/traders.

4.5 Protohistoric

The Protohistoric period is characterized by the following characteristics related to Native American groups: increased inter-tribal strife, rapid population decline, the abandonment of traditional life styles, and the extinction (and migration) of many Native American groups (Spencer 2015). Native Americans groups had not yet formed the large political “tribes” known from the historical era (e.g., 18th and 19th centuries), so many tribal names used during the 17th century are relatively unknown.

During the 17th century, there were several Native American groups living in Ohio including the Mosopela of southwestern Ohio, the Oniassenthe of southeastern Ohio, and possibly the Erie who, though primarily centered in the western New York-northern Pennsylvania area, may have extended into northeastern Ohio (Wheeler-Voegelin 1974:2-4, 63-64). Two other groups that were displaced, the Shawnee and Delaware, also settled in Ohio.

The Shawnee appear to have their origins in southern Ohio, West Virginia, and Kentucky, and may be descendants of the Fort Ancient or Monongahela cultures (Rice and Brown 1994). Constant war with the Iroquois, and subsequent conquest by the Iroquois in 1672, brought the Shawnee in contact with other tribes, such as the Delaware and the Creek (Callender 1978:622). The Shawnee settled with the Delaware in eastern Pennsylvania, and eventually moved to the Ohio Valley between 1720 and 1745.

The Shawnee were considered to be a mobile tribe, so Shawnee villages were typically semi-permanent settlements composed of bark-covered lodges, sweathouses, and communal structures used for ritual and secular celebrations (Clark 1974:85-90). During the summer months, crops were tended in fields near the towns, and in the fall, the inhabitants dispersed to winter camps in sheltered valleys to hunt and trap (Clark 1974).

One of the Shawnee settlements was Lower Shawnee Town located at the mouth of the Licking River. Settled in 1739, a large flood in 1758 prompted many of the Shawnees to move up the Scioto to one of the five villages in Ohio known as Chillicothe. The Shawnee moved west from present day Portsmouth, Ohio sometime between 1729 and 1764 and established the town of “Old Chillicothe” on the Little Miami, about 3 miles north of Xenia. A town was also established 12 miles north on the Mad River at Piqua, where Tecumseh was born. Both Old Chillicothe and Piqua were destroyed in 1780 by an expedition led by George Rogers Clark. The Shawnees then retired to the fifth Chillicothe on the Great Miami River (Clark 1974).

In 1783, the British signed the Treaty of Paris, which recognized U.S. independence and gave the U.S. all the land east of the Mississippi River, except for British possessions in Canada and Spanish territory in Florida. Because Native American groups did not participate in the signing of this treaty, conflicts arose between U.S. settlers and Native American groups over land. These conflicts became known as the Ohio Indian Wars (Ohio History Central 2015). The governor of the Northwest Territory, Arthur St. Clair, tried to negotiate a peaceful resolution, but as part of this agreement, he wanted Native American groups to honor the Treaty of Fort McIntosh signed in 1785. This treaty meant that Native Americans had to relinquish lands in southern and eastern Ohio, limiting them to the western corner of modern-day Ohio with a border that roughly followed the Cuyahoga River on the east (Ohio History Central 2015). Native Americans agreed to these terms by signing Treaty of Fort Harmar on January 9, 1789.

Many Native American groups refused to honor this treaty, including the Shawnee. In 1794, General Anthony Wayne defeated the Shawnee at the Battle of Fallen Timbers, located south of modern-day Toledo. Most of the Shawnees agreed to the Treaty of Greenville in 1814, which ceded all Shawnee lands south of the Ohio River and most of Ohio and southern Indiana to the United States. Some Shawnee joined Tecumseh and resisted until after the War of 1812. A small group of Shawnee fought for the United States during that war and received lands near Wapakoneta and Hog Creek (Lima) Ohio. By 1830, the Shawnee were confined to these two small reservations in northern Ohio. In 1832, all Shawnee lands east of the Missouri River were ceded to the United States Government, and the Shawnee were removed to west of the Mississippi.

4.6 Historic

The Treaty of Greenville in 1814 formally marked the beginning of permanent Euro-American settlement of most of the lands north and west of the Ohio River, although several settlements like Marietta and Losantiville (Cincinnati) were founded as early as 1788. Likewise, the Land Ordinance of 1785 and the 1787 Northwest Ordinance had already delineated how the western lands would be surveyed and governed respectively. In fact, as early as 1785, a survey of the first seven ranges (vertical rows of townships) of eastern Ohio was undertaken, tracts of which were sold in 1787 (Sherman 1925:52).

Aboriginal trails were extensively used by the first settlers, and not only directed their movements but also outlined many later transportation systems (Wallace 1971). The trails connected points, usually villages or towns, directly, and most traversed dry, level land. They provided the first access to suitably habitable areas and later guided engineers in constructing stable, permanent road systems. Indian-European occupational continuity can be easily demonstrated, since a modern highway map of most areas clearly shows that several major routes now follow old Indian trails, and that many of today's cities are situated where aboriginal villages once were (Hulbert 1930:48-59). The most significant of these trails is Zane's Trace in Belmont County, the route of present-day Interstate 70.

While the late 1700s were dominated by the establishment of self-sufficient farms and related pursuits, the groundwork was also being laid for better transportation and the beginnings of commerce and industry in the area. For the first 50 years, most farms were located on bottomlands and terraces along the Ohio River. As farms increased the number of cultivated acres, deforestation produced surplus lumber and surplus foodstuffs. However, only in areas with adequate streams for transportation did sawmills for commercial production appear. Boat building, especially in the Ohio Valley, and milling developed in conjunction with agricultural production (Buck and Buck 1939:300). Keelboats and flatboats were used to ship agricultural produce downriver to New Orleans. Pittsburgh, the focus of this river commerce, grew to a town of 1,565 inhabitants by 1800. Local roads were improved and extended to make wagon traffic more practical, although wagon transportation was not common until after 1790.

Although original settlers and transients alike successfully used the Ohio and its tributaries, together with various Indian trails, as a means of gaining access to the new territory, road building got an early start. Zane's Trace, which primarily connected Wheeling, West Virginia, and Maysville, Kentucky, ran partially across Ohio, through Zanesville on the Muskingum, Lancaster on the Hocking, and Chillicothe on the Scioto. In addition to roads, canals were also constructed to transport people, livestock, and goods. The canal building heyday was primarily limited to the 30-year span between 1825 and 1855, when two major systems totaling over 800 miles of canal were excavated: the Miami and Erie systems (Powell 1975:121). Although canals encouraged a burgeoning agricultural and commercial market, they ultimately failed because their operations were both parochial and seasonal, and because the capacity of their technology was soon outstripped by that of railway transport (Powell 1975:122). The boom in railroad development lasted throughout the next 30 years, from 1850 to 1880, and caused a concomitant surge in economic growth.

4.6.1 Monroe County

Prior to the Greenville Treaty, the land that was Monroe County was part of a block of land that was called the Seven Ranges. The Seven Ranges was set up by the federal government to provide land to soldiers and officers who had fought in the Revolutionary War (Harrington 2011). The Seven Ranges also included the land that encompassed Carroll, Jefferson, Harrison, and Belmont counties, along with small parts of Columbiana, Tuscarawa, Guernsey, Nobel, and Washington counties.

During this time, if one was given land within this general area, given the conflicts with Native American tribes, it was difficult to settle within the Seven Ranges. In addition, the land was steep and hilly, and therefore less desirable for farming. Thus, Euromerican settlement within Monroe County occurred much later in time that some surrounding areas within Ohio (Harrington 2011).

Monroe County became a county on January 29, 1813. It was named for James Monroe, the fifth president of the United States. Settlement increased in the county from 1820 to 1850, reaching its maximum population in 1850 (Harrington 2011). During this time, Monroe County was a farming/rural community.

By the 1890s, oil was discovered on both sides of the Ohio River. With the discovery of oil, populations with Monroe County increased as developers and speculators moved in. Villages had a sudden expansion, including Graysville, which is 2.10 miles (3.4 kilometers) to the northeast of the Project. The oil industry brought jobs, along with associated businesses such as hotels, restaurants, general stores, saw mills, saloons, livery stables and supply and service-oriented businesses (Harrington 2011). Many of the farming families could supplement their incomes by working in the oil fields.

By 1910, the oil boom diminished as the industry changed over from exploration/drilling to production/maintenance. Settlement once again dwindled from 1910 to 1940 (Harrington 2011).

SECTION 5

Field and Analytical Methods

5.1 Archaeological Field Methods

CH2M conducted field investigations to identify archaeological sites within the APE and the larger survey area. CH2M conducted a walkover of the entire survey area to evaluate visible ground disturbance and to identify potential areas of non-disturbed soils that could be subjected to standard Phase I archaeological survey per OHPO (1994) guidelines. Visible disturbance was photo documented, and the appropriate field forms were completed by the field crew.

Standard Phase I archaeological survey techniques (pedestrian survey and subsurface shovel testing) were used for the field investigations. Pedestrian survey involved walking in 5-meter intervals in areas with good ground surface visibility (i.e., greater than 50 percent visibility) and/or in areas of steep slope (greater than 15 degrees).

In areas where the visibility of surface soils was less than 50 percent and undisturbed, systematic shovel testing was required and consisted minimally of 50-centimeter by 50-centimeter diameter holes excavated to 50 centimeters below the surface or until sterile soil was encountered. Shovel tests were excavated at 15-meter intervals across the survey area.

Excavated soils were screened through 0.25-inch wire mesh and examined for evidence of cultural materials. Profiles were described for each shovel test. Notes were recorded concerning the soil stratigraphy (including Munsell color designations and texture) and any artifacts encountered. All shovel tests were assigned a unique designation that were mapped within the survey area before the field survey, and then documented during the field survey with sub-meter accurate geographic positioning system equipment.

If cultural material was encountered, additional radial shovel tests were placed at 7.5-meter intervals as needed to define the horizontal extent of the cultural material. During fieldwork, the field crew completed Sample Loci (SL) forms. Archaeological sites and positive finds within shovel tests were noted on the SL forms. Artifacts were bagged and assigned numbers by their SL locations. Photographs were taken of the general Project area.

5.2 Laboratory Methods

Artifacts collected during the field survey were bagged by provenience. Each bag was labeled with the project number, project title, site number, SL type and number, stratigraphic unit of recovery, date of excavation, and the name of the excavator. This information was then transferred to a log and each bag was labeled with an individual number. Upon return to the CH2M office in Cincinnati, the artifacts were washed in warm water. All artifacts were cleaned and then air-dried. Once dried, artifacts were rebagged for analysis.

5.3 Analytical Methods

During the Phase I archaeological field survey, prehistoric lithic material and historic artifacts were recovered from the survey area. As a result, analytical methods for both prehistoric lithics and historic artifacts are described in this section. The results of the analysis were recorded on excel spreadsheets.

5.3.1 Prehistoric Lithic Analysis

The analysis applied to the Phase I lithic assemblage is often referred to as the *chaine operatoire* (operation chain) system. Current approaches to this type of analysis include a study of the systematic procedures utilized by prehistoric knappers to make tools (Leroi-Gourhan 1964; Geneste and Plisson 1986; Sellet 1993; Bar Yosef and Van Peer 2009). The purpose of the *chaine operatoire* approach is to incorporate the processes of lithic production and use into a framework that can interpret not only morphological characteristics of stone tools, but also human behavior and organization associated with those stone tools (Sellet 1993). Variables, such as the abundance and availability of raw material, cultural influences, and situational constraints, influence lithic manufacturing trajectories from the initial procurement of raw material to the final discard of a stone tool within the *chaine operatoire* (Andrefsky 1998:38).

Lithic analysis often includes placing artifacts into specific types, which reflect certain stages within a stone manufacturing trajectory. The following paragraphs explain and define the typologies used within this analysis to identify the specific reduction sequences within a lithic assemblage. If the sample size is large enough and not limited to a small number of artifacts, interpretations concerning the behavior and activities associated with the assemblage are made within Section 7.0 of this report.

5.3.1.1 Raw Material Analysis

The manufacture of stone tools involves a process that begins with the selection of raw materials. In order to make flaked stone tools, suitable raw material must be easily worked into a desirable shape and it must be able to produce sharp, durable edges. Raw material selection involves a careful process of decision-making and includes consideration of the properties of specific materials, as well as, the abundance and availability of those materials (Bar Yosef 1991). To help address the decision making behind selecting raw material, raw material analysis often focuses on identifying the type and quality of raw material, and the provenance or source location of the raw material (Andrefsky 1998:41).

Stone material analysis for this project was conducted macroscopically by visual inspection, which can be viewed as a “best fit” approach based on the available information. Primarily, the color and texture of the chert were recorded for all specimens. In some instances, when cortex was present on artifacts, notes were taken on whether the chert came from a primary (e.g., outcrop) or secondary source (e.g., stream); notes were also taken on if the chert was tabular, nodular, etc. These variables were compared to appropriate references for the region (e.g., DeRegnaucourt and Georgiady 1998) to identify specific chert types and the possible location of these specific chert types.

5.3.1.2 Method of Lithic Analysis

Once a raw material has been selected, the process of tool manufacture begins. It is important to note that tool manufacture is always reductive. Stone is always removed to make a tool, making it a subtractive process, unlike other prehistoric technologies (e.g., ceramic production and house construction), which often add elements or pieces (Andrefsky 1998:29).

Two different strategies can be utilized for tool manufacture. The first, involves the reduction of a material block directly into a tool form (e.g., biface) or the production of a core; the second reduction process involves the preparation of a block of raw material so that flakes of a suitable shape and size can be detached. These blanks are then flaked by percussion or pressure flaking into a variety of tool types including scrapers, flake tools, bifacial knives, or projectile points.

Biface reduction can proceed along two different manufacturing trajectories, one of which involves the reduction of blocks of raw material, while the other involves the reduction of a flake blank. Experimental work has shown that the former manufacturing strategy, involving a block of raw material, begins with the detachment of flakes with cortical or natural surfaces. This stage is accomplished by direct percussion, usually involving a hard hammer that more effectively transmits the force of the blow through the outer surface. Having removed a series of flakes and thus created suitable striking platforms, the knapper begins the thinning and shaping stage. The majority of the knapping is done with a soft hammer using marginal flaking. The pieces detached tend to be invasive, extending into the midsection of the biface. A later stage of thinning may follow, which consists of further platform preparation and the detachment of invasive flakes with progressively straighter profiles in order to obtain a flattened cross-section. By the end of this stage, the biface has achieved a lenticular or bi-convex cross-section. Finally, the tool's edge is prepared by a combination of fine percussion work and pressure flaking, if desired. It should be noted that flakes deriving from biface reduction are sometimes selected for tool manufacture as discussed above. Thus, the biface can, in some instances during the reduction cycle, be treated as a core.

The second manufacturing trajectory, utilizing a flake, begins with core reduction and the manufacture of a suitable flake blank. The advantages of utilizing a flake blank for biface reduction include: 1) flakes are generally lightweight and can be more easily transported in large numbers than blocks of material; and 2) producing flakes to be used for later biface reduction allows the knapper to assess the quality of the material, avoiding transport of poorer-grade cherts.

The initial series of flakes detached from a flake blank may or may not bear cortex. However, they will display portions of the original dorsal or ventral surfaces of the flake from which they were struck. It should be noted that primary reduction flakes from this manufacturing sequence can be wholly non-cortical. Thus, the use of the presence of cortex alone to define initial reduction is of limited value. Biface reduction on a flake involves the preparation of the edges of the piece in order to create platforms for the thinning and shaping stages that follow. In most other respects, the reduction stages are like those described above, except that a flake blank often needs additional thinning at the proximal or bulbar end of the piece to reduce the pronounced swelling.

To identify specific lithic reduction sequences, all lithic artifacts were first separated into types, such as retouched tools, cores, and debitage. These types were then further divided into subtypes. Specific attributes (e.g., presence or absence of cortex) and measurements were taken during lithic analysis, when appropriate, and were noted on the excel spreadsheet. The list below presents each of the major artifact typologies used in this analysis.

1) Retouched Tools
    - A) PPKs
    - B) Bifaces (biface stages from Callahan 1979)
        1. Stage 1 Blank: Natural or flake blank; minimal retouch, testing
        2. Stage 2 Edged Biface: Exhibits edge/margin shaping, initial thinning
        3. Stage 3 Thinned Biface: Initially thinned, shaped biface preform
        4. Stage 4 Preform: Exhibits refined thinning/shaping without development of specific attributes
        5. Stage 5 Finished Biface: Finished tool exhibiting specific formal elements, dedicated to specific use. Fully developed hafting elements, sharpening, or edge serration.
    - C) Flake Tools
    - D) Uniface
    - E) Miscellaneous Tools
2) Cores
    - A) Flake Core
    - B) Bifacial Core
    - C) Blade Core
    - D) Bipolar Core
3) Groundstone

4) Debitage

   A) Flakes
      1. Initial Reduction Flake - all reduction sequences
      2. Unspecified Reduction Sequence Flake - unknown reduction sequence
      3. Biface Initial Reduction Flake
      4. Biface Thinning Flake
      5. Biface Finishing Flake
      6. Chip – unknown reduction sequence, complete specimen less than one centimeter in length
      7. Microdebitage <5 millimeters in length
      8. Janus Flake
   B) Flake Fragments/Shatter
   C) Angular Fragments/Shatter

5.3.1.3 Retouched Tool Terminology

For the purposes of typological description only, a tool is defined as any piece of raw material that has been intentionally modified by retouch or unintentionally modified by usewear (Andrefsky 1998). Tools intentionally modified often include PPKs and bifaces. Unintentionally modified tools often include unretouched flakes with good cutting edges. However, it is difficult to identify these types of tools without a microwear analysis.

Retouch refers to the modification of a block of raw material (biface manufacture) or flake by a single removal or series of removals, thus transforming the piece into a tool. Retouch shapes the original blank and its edges and can take the form of invasive bifacially detached flakes on a PPK or small, tiny flakes on the edge of an endscraper. Retouch may also be caused unintentionally due to utilization; in this case, retouch forms as a result of an activity and not by a process of intentional modification before use. Utilization retouch is typically discontinuous along an edge.

Specific definitions related to tool types include the following:

Biface: A biface is any retouched tool, partially completed or finished, which has been flaked by percussion or pressure flaking over both of its surfaces. There are considered five separate stages to biface production as defined by Callahan (1979). These stages include:

> Stage 1 Blank: A blank that consists of a piece of raw material (flake, cobble, or chunk). The type of bifacial blank is dependent upon the type of biface being produced and the available raw material.
>
> Stage 2 Edged Biface: During this stage, the blank is chipped around the edges on both sides. In addition, the squared or rounded edges of the piece are often removed.
>
> Stage 3 Thinned Biface: This stage involves the primary thinning of a biface, which consists of humps, ridges, and previous step fractures being removed. These bifaces have flakes detached, which reach the center of the piece and most of the cortex is removed (Andrefsky 1998: Table 7.7).
>
> Stage 4 Preform: This stage involves the secondary thinning of the biface. Flake scars may be patterned and travel past the center of the surface, and butts are prepared by grinding or beveling. Initial shaping also occurs at this stage (Andrefsky 1998:181).
>
> Stage 5 Finished Biface: This stage entails the final shaping of the biface, which usually exhibits refined trimming of edges and can possibly be hafted (Andrefsky 1998: Table 7.7).

Retouched Flake: This category of retouched tool is represented by flakes, or badly broken artifacts, which have limited amounts of retouch and are not standardized tool forms. The retouch on these artifacts is highly varied in type, inclination, and position.

Uniface: A uniface is any retouched tool, partially completed or finished, which has been flaked by percussion or pressure flaking on one side only.

5.3.1.4 Core Terminology

A core is a block of raw material, other than a biface preform, from which flakes have been detached. Cores may be produced by careful preparation or consist of a block of material from which only a few flakes have been detached. Core types include:

Flake Core: This type includes a variety of cores that are used for flake removal.

Bifacial Core: A biface made from a block of raw material or flake blank from which material can be struck to produce a variety of bifacial tools.

Blade Core: A prepared core from which blades are removed. These cores are typically conical or pyramidal in shape; and often require preparation of the core prior to blade removal, as well as, periodic rejuvenation.

Bipolar Core: Typically, this is a small core that is placed on an anvil and struck to detach flakes. The force of the blow produces shatter marks on both ends of the core.

5.3.1.5 Debitage Terminology

The term debitage describes flakes that have not been modified by secondary retouch and made into tools. Debitage is a French term referring to: 1) the act of intentionally flaking a block of raw material to obtain its products, and 2) those products themselves.

Most debitage occurs in the form of flakes. A flake is a product of debitage that has a length/width ratio of 1:1 (de Sonneville-Bordes 1960). In this report, there are two separate categories of flakes:

- Those pieces to which a specific reduction sequence cannot be assigned; and
- Those pieces associated with biface reduction.

With flakes assigned to unspecified reduction sequences, it is impossible to tell whether they have been detached during simple core reduction or biface manufacture. For example, cortical flakes initially removed from a block of raw material can appear similar in both core and biface reduction. Flakes identified as part of an unspecified reduction sequence are typed as initial reduction flakes, unspecified reduction sequence flakes, and chips.

Chips are defined as tiny flakes (<1 centimeter in length) that are detached during several different types of manufacturing trajectories (Newcomer and Karlin 1987). First, they can result from the preparation of a core or biface edge by abrasion, a procedure that strengthens the platform prior to the blow of the hammer. During biface manufacture, chips are detached when the edge is ‘turned’ and a platform is created in order to remove longer, more invasive flakes. Tiny flakes of this type are also removed during the manufacture of tools like end-scrapers.

Flakes associated with biface reduction include:

Biface Initial Reduction Flakes – These are typically thick, have cortex on part of their dorsal surfaces, and have large plain or simply faceted butts. There are relatively few dorsal scars, but these may show removals from the opposite edge of the biface.

Biface Thinning (or shaping) Flakes – These result from shaping the biface, while its thickness is reduced. These flakes generally lack cortex, are relatively thin, have narrow, faceted butts, multidirectional dorsal scars, and curved profiles. Thinning flakes are typically produced by percussion flaking.

Biface Finishing Flakes – Also known as trimming flakes, these are produced during the preparation of the edge of the tool. These flakes are similar in some respects to thinning flakes, but are generally smaller and thinner and can be indistinguishable from tiny flakes resulting from other processes such as platform preparation. Biface finishing flakes may be detached by either percussion or pressure flaking.

These terms described above for biface reduction follow in a broad sense those proposed by Newcomer (1971), Callahan (1979), and Bradley and Sampson (1986). Although artifacts are put into defined types and/or stages, it is important to note that biface reduction (and lithic reduction as a whole) is a dynamic process that should often be viewed as a continuum from raw material selection to the final abandonment of the tool. Therefore, the classificatory results provided in this text, at least at the level of individual artifacts, should be regarded as "informed opinion" rather than absolute.

Other important terms related to debitage include:

Janus Flake: These flakes are a debitage type produced during the initial reduction of a flake blank (Tixier et al. 1980). The removal of a flake from the ventral surface of a larger flake results in a flake with a dorsal surface, which is completely or partially composed of the ventral surface of the original flake blank.

Percussion and Pressure Flaking: Percussion flaking involves the use of a hammer or percussor to strike a piece of chert in order to detach a flake. This hammer can be of a relatively hard material, such as a quartzite hammerstone, or a softer organic material such as a deer antler. Direct percussion is a flaking technique, which involves the delivery of the blow directly on to the striking platform, while indirect percussion utilizes an intermediary or 'punch'. Pressure flaking, as suggested by the name, involves the chipping of stone by pressure. Flakes are 'pressed off' with the use of a pointed tool such as a deer or elk antler tine.

Platform Abrasion: When the blow of the precursor is aimed close to the edge of the piece being flaked (marginal flaking), it is necessary to prepare and strengthen that edge. The edge is usually prepared by abrasion that entails rubbing the striking platform area with a hammerstone and detaching a series of tiny flakes (chips) from the surface where the flake will be removed. Evidence of platform abrasion is usually clearly visible on biface thinning flakes at the intersection between the butt and dorsal surface.

Shatter: Shatter can be produced either during the knapping process or through natural agents. Naturally occurring shatter is usually the result of a thermal action shattering a block of chert. During debitage, shatter results from an attempt to flake a piece of chert with internal flaws and fracture lines. For the purposes of this report, shatter is defined as a piece of chert that shows no evidence of being humanly struck, but may nonetheless be a waste product from a knapping episode.

5.3.2 Historic Artifact Analysis

The historic artifact classification established in this report is based first on the material, and secondly on class designations established by Sprague (1980). This is a functional classification, in which the form or material of an object is of minor importance when compared to the object's function in a culture. The classification is similar to that defined by South (1977), but the categories in Sprague's classificatory system are mutually exclusive, and the system is designed specifically for 19^{th} and 20^{th} century sites. Artifacts are assigned to one of a number of groups, such as Personal Items, Domestic Items, Architecture, Commerce and Industry, or Unknown objects classified by material.

Each group is subdivided into classes based on function. For example, Domestic Items may be broken down into furnishings, housewares and appliances, and cleaning and maintenance. Architectural Items fall into classes such as construction, plumbing, fixed illumination and power, fixed heating, cooling, and atmospheric conditioning, and architectural safety.

Classes are further subdivided into types that were based on one or more key attributes. For example, in the case of a ceramic sherd, observable criterion, primarily technological or stylistic, by which a ceramic type has been defined included shape, paste, hardness, part, decoration, color, and glaze.

5.3.2.1 Ceramic Types

Ceramics were typed using Sutton and Arkush (1998:165-232) and Stelle (2001). Main types include earthenwares, stonewares, yellowwares, and porcelains. These types are described below.

Earthenware is a broad category of ceramics fired at temperatures too low to vitrify the paste, but high enough to vitrify the glaze. Earthenware pastes tend to be porous, absorbent, and coarsely-grained. Various materials were often added to the paste as tempering agents and are clearly visible in the paste.

Earthenware-quality clays were readily available, relatively easy to work and inexpensive to fire. As a result, earthenwares were generally utilitarian vessels, and are often ubiquitous on historic period sites. Some decorative types were prized tablewares. Decorative types included tin glazed, iron glazed, mottled manganese, lead glazed, slipped, slip-trailed, combed slip, and sgrafitto.

Earthenwares are details of vessel form, manufacturing, and decorative technique, which are diagnostic for specific ethnicities or periods. For example, the so-called refined earthenwares of the late 18th – 19th centuries reflect the popular demand for inexpensive imitations of porcelain. The following subcategories of refined earthenwares (i.e., creamware, pearlware, whiteware, and ironstone) are usually treated as distinct types with discrete production histories.

Creamware is the earliest refined earthenware, dating from circa 1760 to 1820. Creamwares are generally thinly potted using mold patterns.

Pearlware has a white paste and was introduced after 1779 by Josiah Wedgwood. Pearlware has several improvements over creamware including increased flint content, which is where cobalt was added to the glaze to mask the natural yellowish tint of the glaze. The addition of cobalt gives pearlware a bluish-green cast. Pearlware was most popular around 1810, but was largely replaced by whiteware in 1825.

Whiteware has a white paste, clear glaze, and no tinting. It became popular around 1825. The paste is generally more porous than that of ironstone (see below), which generally possesses a harder, more compact paste.

Ironstone is highly refined opaque earthenware with a clear glaze. As stated above, it is typically a dense, non-porous, paste, which is sometimes difficult to discern from whiteware. “Heavy bodied” dense ironstone wares were heavily produced from 1840 to 1885, although ironstone is still produced today.

Stoneware is characterized by a compact, fine-grained and non-porous, opaque body fired to higher temperatures (1300 degrees Fahrenheit) than the earthenwares. Stonewares are manufactured from naturally vitrifying, dense clays that produce a fine-grained, homogenous texture with a hard body. Stonewares often are decorated with cobalt and manganese, Albany or Bristol slips, or salt glazing, with a variety of incised or applied surface decorations. Stonewares are typically used for utilitarian and tableware purposes, although by the 19th century, it was used primarily for storage vessels.

Yellowware refers to a ceramic type constructed of clay, which fires to a yellowish hue. Less dense than stoneware, yellowware is fired at 2200 degrees Fahrenheit to a very durable body suitable for use in baking. Yellowwares were intended to be low cost, mass-produced utilitarian ceramics. Manufacturing dates range from 1850 to 1930.

Porcelain is a highly vitrified ceramic with a white, translucent, almost glassy body. Porcelain contains a meticulously purified kaolin white china clay and feldspar paste that has been fired at extremely high temperatures.

5.3.2.2 Ceramic Decorations

In general, ceramics are decorated by glazing, which is an applied solution that vitrifies at a high temperature sealing the porous paste of the vessel, while imparting a distinctive color per the trace elements present in the glaze solution. Prior to 1820, most historic glazes were based on lead flux. After

1820, alkaline glazes were introduced and these became more prevalent. The use of Hydrofluoric acid and ammonium sulfide solutions may be used to test the presence of lead in historic ceramic sherds (Deiss 1985).

Common decorative types include underglaze transfer print, flow blue, spongeware/spatterware, handpainted underglaze, annular, and molded or embossed wares. Each of these decorative types are described below.

Underglaze transfer print was developed in the early part of the 19th century. The designs are usually intricate using floral motifs, as well as oriental scenes. The earliest transfer prints were blue, but a variety of colors was introduced after circa 1825.

Flow blue decoration was a variant of transfer printing, where the design flows or blends with the glaze. As a result the design is fuzzy or blurred, caused by the introduction of a volatile liquid, such as lime or ammonia chloride, during the final firing of the vessel. Flow blue decorated wares date from 1830 to 1860, with a peak in production from 1850 to 1860.

Spongeware involves the application of a coloring agent with a modified sponge. The sponge is dipped in a color or variety of colors and used to produce blotches, whirls, or bands. Accepted date ranges for spongeware are from 1840 to 1860, although it continues into present day.

Spatterware is a variant of spongeware, where color is “spattered” over the surface of the vessel. Date ranges for spatterware are from 1840 to 1880, but are also found in present day.

Handpainted underglaze was utilized on refined earthenwares including pearlware, whiteware, and ironstone. Handpainted decorations, usually floral motifs, occur in the following colors on earlier ceramics: blue, ochre, and green. Later ceramics (circa 1840 to 1860) were often polychrome with a wider variety of colors such as green, brown, yellow, black, red, blue, and pink.

Annular decoration refers to horizontal or concentric bands of color applied to the slip. These types of banded decorations were commonly applied to whitewares and ironstone with the use of a quill. Annular whiteware has a median date of production of 1845.

Molded or embossed wares include edge decorated pearlwares and whitewares such as the “shell-edge” or “feather edge” types. These ceramic wares typically have a pattern molded to the edge that was covered with a cobalt blue or forest green color. Blue and green shell edge wares have a date range of 1810 to 1860 (Lofstrum et al. 1982). Plain molded or embossed designs also occur on whiteware and ironstone, especially in the mid-19th century. Large embossed ironstone vessels, with floral or naturalist designs such as sheaves of wheat, have a median date of production around 1873 (Gates and Ormerod 1984).

5.3.2.3 Glassware

In addition to ceramics, glassware can also provide chronological information on historic-era sites. Vessel form, closure type, metal (chemical composition) and manufacturing technique are often diagnostic attributes.

Glass was cataloged by color. However, it is important to note that typing by the color of glass is unreliable, but more practical for 19th and 20th century collections, where the glass-making compounds have become standardized for the industry. More reliable dating measures, such as chemical analysis or ultra-violet light testing (Jones and Sullivan 1985:10, 12) were not utilized. As a result, all glass was cataloged by color, supplemented by manufacturing technique, vessel form, and rim/base finish (if this data was available).

5.3.2.4 Metal

Nails are the most common diagnostic metal artifact found on historic and modern-era sites. Nail types include wrought, cut nails, and wire nails, with wrought nails being the earliest and wire nails being the latest. Roughly 1790 to 1830 is considered to be a transitional period from wrought to cut nails (Nelson 1963:4). After the American Revolution, many cut nail manufacturers became established in the northeast, and they manufactured nails with hand powered machines and then by machines powered by water or steam power. From 1791 to 1815, Jacob Perkins, J. G. Pierson, Jesse Reed, and Mark and Richard Reeve obtained 88 patents for improvements on nail machines. The rapid development and sale of these machines, made it possible to manufacture nails on a much wider scale in the early 19th century (Nelson 1963:6).

The development of cut nail manufacturing is marked by at least five distinct phases (Nelson 1963:8): cut from common sides with hammered heads (1790s-1820s); cut from opposite sides with hammered heads (1810-1820s); cut from common sides with crude machine-made heads (1815-1830s); cut from opposite sides with crude machine-made heads (1820s-1830s); and modern machine headed nails.

The first factories set up for the production of wire nails were apparently established in New York in the 1850s. The earliest wire nails were not made for building construction, but rather in smaller sizes for pocket-book frames and objects like cigar boxes (Nelson 1963:9). American wire nail machinery was not really perfected until 1860 to 1870, and even then, they did not replace cut nails right away. The transition was gradual, with wire nails becoming the dominant type around the 1890s. Earlier wire nails can be distinguished from their modern counterparts by their head, as they are bulbous and generally eccentric with respect to the shank. Generally, the presence of wire nails in older sites indicates late 19th or 20th century repairs, alterations, or maintenance.

5.4 Curation

The artifacts recovered from the Project will be temporarily stored at CH2M in Cincinnati, Ohio, until the materials are returned to the landowner.

SECTION 6

Archaeological Field Results

The Phase I archaeological survey for the Project was conducted from May 15 through May 26, 2017. The survey area is within a rural setting that contains both open fields and wooded areas (Photographs 6.1 and 6.2). There is also an existing transmission line running northeast-southwest through the survey area (Photograph 6.3). The field survey results are illustrated in Figures 6.1 to 6.3.

Large portions of the survey area were subjected to pedestrian survey due to slope. Pedestrian survey was also used in areas that contained visible disturbance and recently plowed fields (Photograph 6.4). The visible disturbance is attributed to previous logging and oil well activities associated with the survey area. For example, cut and fill access roads and artificial benches were present throughout the survey area (Photograph 6.5). Also, areas around the existing transmission alignment have been graded, and soil has been displaced.

CH2M excavated a total of 694 shovel tests. Most of these shovel tests occurred on two ridgetops that run north-south through the survey area. In general, soils throughout the survey area were either eroded or shallow. Eroded soils from shovel tests contained 10 centimeters or less of soil, or sod caps underlain by thick dense clay. This was exaggerated on or near sloped areas within the survey area. Example eroded soil profiles include:

- SL AH14: 10 centimeters of 10YR 4/4 silt loam underlain by a 10YR 5/8 silt clay loam.
- SL J34: 25 centimeters of 5YR 4/4 clay.

Intact top soils were scattered on the ridgetops. The easternmost ridge contained deeper soils like those found at SL AE02, which consisted of a 29-centimeter thick layer of 10YR 3/4 silt clay underlain by a 10YR 5/6 clay. On the western ridge, a typical soil profile, such as SL P16, revealed a 21-centimeter thick layer of 10YR 4/3 silt clay loam underlain by a 10YR 5/4 clay.

The archaeological field survey identified one artifact scatter (33MO0194) near the southeast boundary of the survey area (see Figure 6.2). This site is recommended not significant in state prehistory and/or history. Site 33MO0194 is discussed further in Section 7.0.

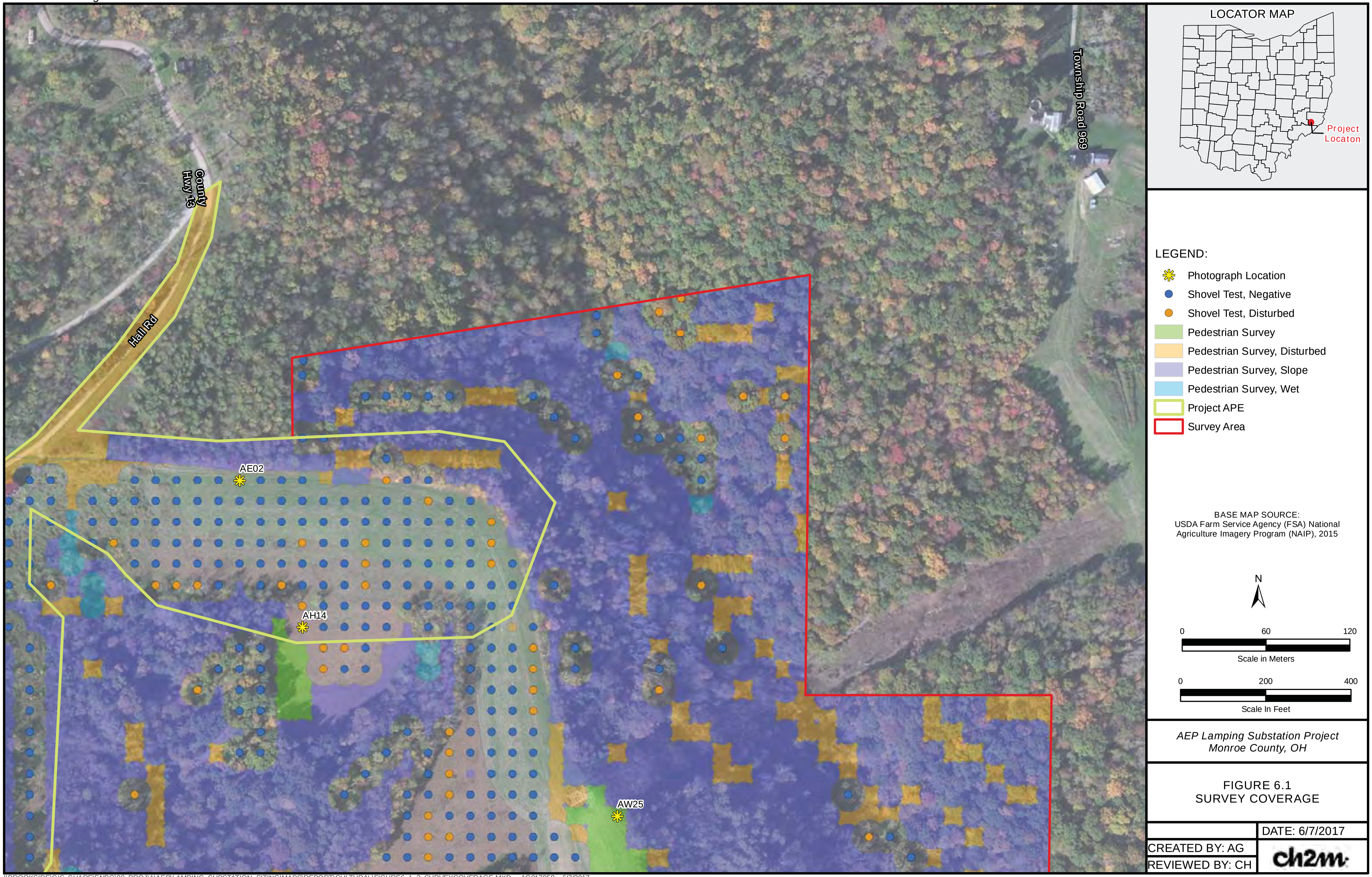
Please note that architectural and historical resources identified during the field survey are discussed in a separate report submitted to the OHPO. Please see Tuk (2017).

Photograph 6.1. Representative view of an open field, SL P11, facing south

Photograph 6.2. Representative view of slope, SL K22, facing south

Photograph 6.3. View of Existing Transmission Line, SL P33, facing southwest

Contains Privileged Information: Do Not Release



LEGEND:
- Photograph Location
- Shovel Test, Negative
- Shovel Test, Disturbed
- Pedestrian Survey
- Pedestrian Survey, Disturbed
- Pedestrian Survey, Slope
- Pedestrian Survey, Wet
- Project APE
- Survey Area

BASE MAP SOURCE:
USDA Farm Service Agency (FSA) National Agriculture Imagery Program (NAIP), 2015

N

0 60 120
Scale in Meters

0 200 400
Scale In Feet

AEP Lamping Substation Project
Monroe County, OH

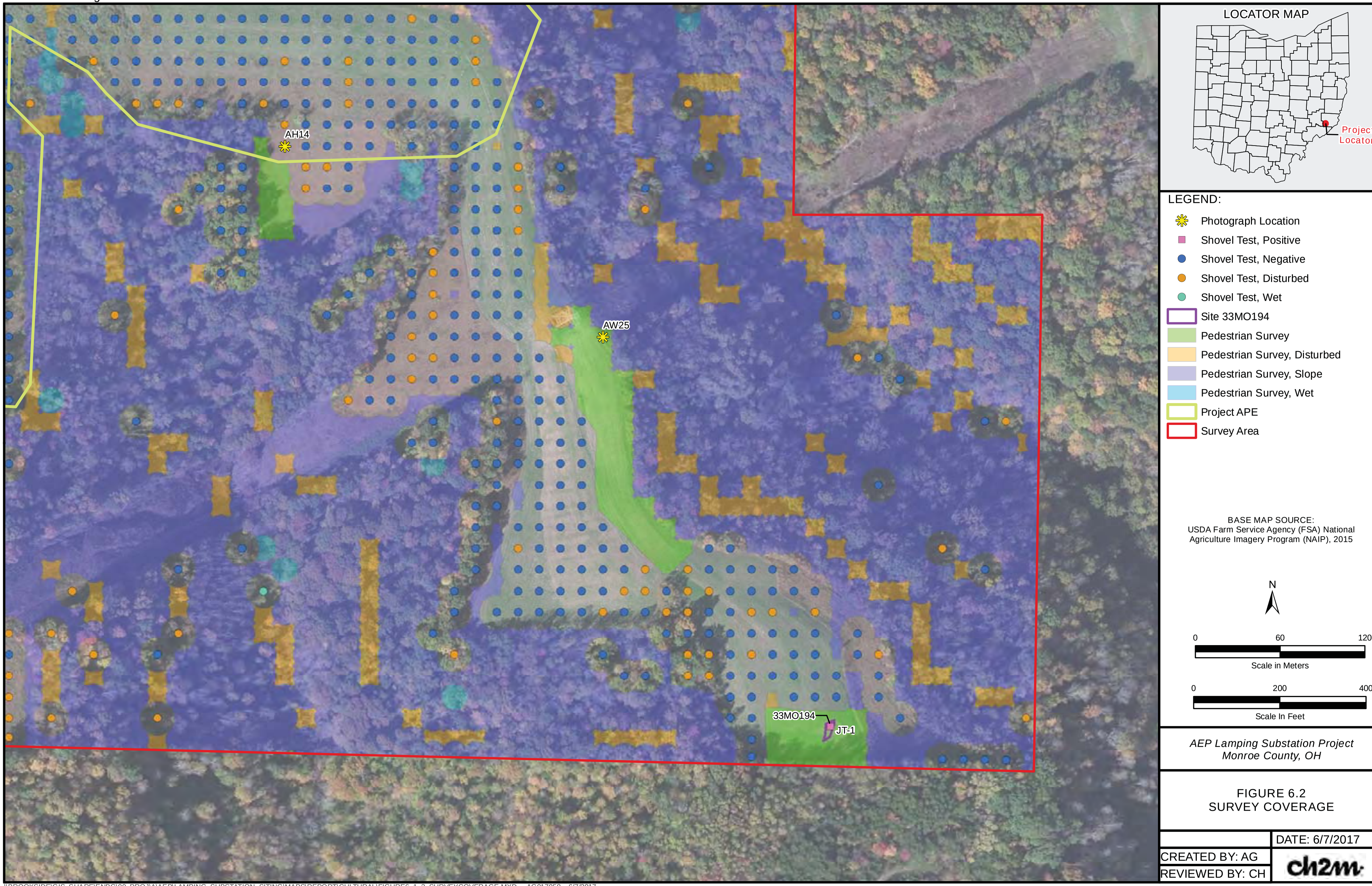
FIGURE 6.1
SURVEY COVERAGE

DATE: 6/7/2017
CREATED BY: AG
REVIEWED BY: CH

ch2m

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\A\AEP\LAMPING_SUBSTATION_SITING\MAPS\REPORT\CULTURAL\FIGURE6_1_3_SURVEYCOVERAGE.MXD AG017958 6/7/2017

Contains Privileged Information: Do Not Release



LEGEND:

- Photograph Location
- Shovel Test, Positive
- Shovel Test, Negative
- Shovel Test, Disturbed
- Shovel Test, Wet
- Site 33MO194
- Pedestrian Survey
- Pedestrian Survey, Disturbed
- Pedestrian Survey, Slope
- Pedestrian Survey, Wet
- Project APE
- Survey Area

BASE MAP SOURCE:
USDA Farm Service Agency (FSA) National Agriculture Imagery Program (NAIP), 2015

N

0 60 120
Scale in Meters

0 200 400
Scale In Feet

AEP Lamping Substation Project
Monroe County, OH

FIGURE 6.2
SURVEY COVERAGE

DATE: 6/7/2017
CREATED BY: AG
REVIEWED BY: CH

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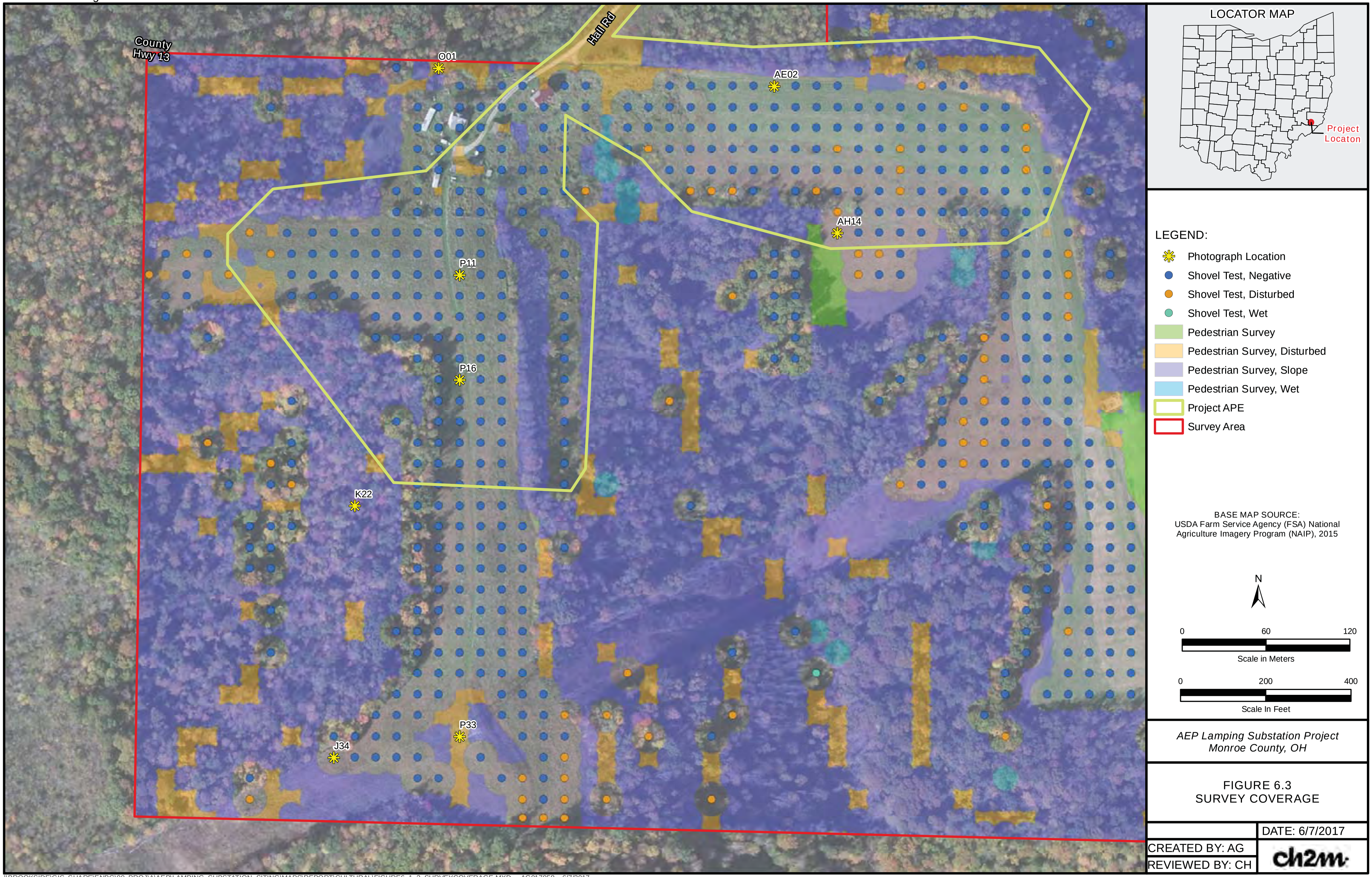
\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\A\AEP\LAMPING_SUBSTATION_SITING\MAPS\REPORT\CULTURAL\FIGURE6_1_3_SURVEYCOVERAGE.MXD AG017958 6/7/2017

Contains Privileged Information: Do Not Release



AEP Lamping Substation Project
Monroe County, OH

FIGURE 6.3
SURVEY COVERAGE

DATE: 6/7/2017
CREATED BY: AG
REVIEWED BY: CH
ch2m.

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Photograph 6.4. Example of Plowed Field, from SL AW25, facing southeast

Photograph 6.5. Example of Cut and Fill Road, from SL O1, facing west

SECTION 7

Site Descriptions

The Phase I archaeological field survey identified one archaeological site (33MO0194) within the survey area. Located near the southeastern boundary of the survey area, this resource is not within the APE. This prehistoric/historic artifact scatter is not significant in terms of contributing further information regarding Ohio prehistory and/or history.

7.1 33MO0194

Site Type: Artifact Scatter
Temporal Affiliation: Unassigned Prehistoric, Historic: Mid-19th to Early 20th Century
Site Area: 55.4 meters^2 (596.3 feet^2)
Landform (Setting): Ridgetop, Plowed Field
Soils: Zanesville Silt Loam, 6-12 percent slopes (ZnC2)
Nearest Water Source: Allen Hollow: 324 meters (1,060 feet) to the east of the site
Elevation: 314 meters (1,040 feet) above mean sea level
Vertical Context: Surface and Subsurface
Artifact Inventory: 16
Recommendation: Cannot contribute significant information regarding Ohio prehistory and/or history, no further work recommended

Site 33MO0194 was identified during pedestrian survey of a plowed field near the southeastern boundary of the survey area (Figure 7.1, Photograph 7.1). Ground surface visibility was nearly 100 percent, and 11 artifacts were recovered from the ground surface, including one piece of lithic debitage and 10 historic-era ceramics. One shovel test (SL JT1) was excavated within the artifact scatter to identify subsurface material.

SL JT1 revealed a 12-centimeter thick plowzone layer of 10YR 3/4 silty clay loam underlain by a 14-centimeter thick layer of mottled 10YR 3/4 silty clay and 10YR 5/6 silty clay loam. These two strata were on top of a 10YR 5/6 silty clay subsoil (Photograph 7.2). Five historic-era ceramics were recovered from the plowzone of this shovel test.

CH2M reviewed historic mapping and records to identify a possible structure in relation to the artifact scatter. Monroe County tax records indicate that in 1853 and 1859, the site was within a parcel owned by Stephen Henthorne. The Henthorne surname is consistent with a known family cemetery located just outside the survey area. By 1869, the parcel is listed under the name G.W. Hendershott (Ehrgott et al 1869, H.H. Hardesty and Co. 1898). None of the examined resources indicates that a building was located in the vicinity of site 33MO0194. USGS topographic maps dating as early as 1946, and historic aerial photographs from as early as 1958, do not depict a building at this location, either.

A total of 16 artifacts were recovered from the site. One prehistoric flake and 10 historic-era ceramics were recovered from the ground surface, and five additional historic-era ceramics were recovered from the plowzone of SL JT1. The prehistoric lithic is a biface thinning flake manufactured from cream, vitreous chert (possibly locally-available Brush Creek/Crooksville chert). The specimen is a proximal fragment weighing 3.7 grams. It exhibits evidence of plow damage on its lateral edges.

Contains Privileged Information: Do Not Release

AEP Lamping Substation Project
Monroe County, OH

FIGURE 7.1
SITE 33MO194

DATE: 6/7/2017
CREATED BY: AG
REVIEWED BY: CH
ch2m

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\A\AEP\LAMPING_SUBSTATION_SITING\MAPS\REPORT\CULTURAL\FIGURE7_1_SITE_33MO194.MXD AG017958 6/7/2017

Photograph 7.1. Overview of 33MO0194, SL BG26, facing northeast

Photograph 7.2. Overview of SL JT1

Recovered historic artifacts include 12 whiteware sherds and three stoneware sherds (Table 7.1.). All of these artifacts would fit within the Kitchen Group. The whiteware (n=10) is mostly fragmentary body sherds with no decoration. The remaining two whiteware sherds were rims with blue edgeware decoration. The three stoneware sherds exhibited Albany slip surface treatment (Photograph 7.3).

The undecorated whiteware have a broad date range, but the presence of Albany-slipped stoneware and the edge decorated whiteware rims would suggest a date range of mid-19th to early 20th century for the site.

Table 7.1. Summary of Historic-Era Ceramics at 33MO0194.

Artifact Type	**Frequency**	**Date Range**
Stoneware- Albany Slip	3	1890-1925
Whiteware- Plain, Undecorated	10	1820-Present
Whiteware- blue edge design	2	1830-1860
TOTAL	**15**	**-**

Based on the artifact assemblage and a review of historic mapping/records, site 33MO0194 is an artifact scatter with an unassigned prehistoric and a mid-19th to early 20th century component. The unassigned prehistoric component is an isolated biface thinning flake. The historic-era component consists of 15 ceramics. Historic mapping and records did not reveal any potential buildings within the vicinity of the artifact scatter, and it appears that historically the parcel has remained undeveloped. The historic-era artifacts, as a result, may represent a dumping episode.

CH2M recommends that site 33MO0194 cannot contribute significant information to the prehistory or history of Ohio due to:

- The recovery of one prehistoric lithic flake, which is isolated in nature.
- The low frequency (n=15) and lack of variety (i.e., all ceramic sherds) of historic-era artifacts.
- The limited diagnostic material, and
- The lack of intact soil deposits, as all artifacts were either identified on the ground surface or within the plowzone.

No further work is recommended for this site.

It is important to note that site 33MO0194 was identified near the edge of the southeastern property boundary and within the survey area, on property owned by AEP Ohio Transco. However, the site is not within the APE for this Project (see Figure 6.2), and will not be impacted by the construction of the proposed substation(s).

Photograph 7.3. Representative Artifacts of Site 33MO0194.

SECTION 8

Summary and Recommendations

This report has presented the background research, field strategy, and results of the Phase I archaeological survey for the Project. The Project includes the construction of two new substations approximately 2.1 miles (3.4 kilometers) southwest of Graysville, Monroe County, Ohio.

The APE considered potential direct Project impacts to archaeological resources. For the Project, the APE was defined as the land proposed for ground disturbance, which included the 24.8 acres (10 hectares) associated with the construction of the two proposed substations. In consultation with the OHPO, AEP Ohio Transco agreed to survey a much larger area, which consisted of the parcels owned by AEP Ohio Transco, in addition to access roads (referred to as the survey area in this report). This larger survey area totals 144.4 acres (58.4 hectares), and the APE is encompassed within this larger survey area.

The literature review identified one OAI site, three OHI resources, four cemeteries and three cultural resources surveys within one mile (1.6 kilometers) of the survey area. None of these cultural resources and/or surveys was located within the APE or the survey area.

The Phase I archaeological survey was conducted in May 2017, utilizing both pedestrian reconnaissance and shovel testing within the survey area. One archaeological site, 33MO0194, was identified within the survey area, but not within the APE. Site 33MO0194 is recommended not significant in terms of contributing further information regarding Ohio prehistory and/or history, and no further archaeological work is recommended for this site.

In addition, no archaeological sites were identified within the APE and no other archaeological sites were documented within the survey area; therefore, CH2M recommends no further archaeological work for the Project.

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Architectural and Historical Resources Report: AEP Ohio Transco Lamping Station Project, Washington Township, Monroe County, Ohio

Prepared for

American Electric Power Ohio Transmission Company

Lead Agency

Ohio Power Siting Board

June 2017

400 E Business Way, Suite 400
Cincinnati, Ohio 45241

Report Prepared By:

Jared N. Tuk, MA
Architectural Historian

Contents

Tables

Figures

Photographs

Acronyms and Abbreviations

AEP Ohio Transco	American Electric Power Ohio Transmission Company
APE	area of potential effect
CH2M	CH2M HILL Engineers, Inc.
DOE	Determination of Eligibility
NRHP	National Register of Historic Places
OAI	Ohio Archaeological Inventory
OHI	Ohio Historic Inventory
OHPO	Ohio Historic Preservation Office
Project	Lamping Station Project
ROW	right-of-way

Abstract

On behalf of American Electric Power Ohio Transmission Company (AEP Ohio Transco), CH2M HILL Engineers, Inc. (CH2M) of Cincinnati, Ohio, conducted a survey, evaluation, and impacts assessment of architectural and historical resources associated with the proposed Lamping Station project (Project) in Washington Township, Monroe County, Ohio. The architectural and historical resources survey was conducted in May 2017 to satisfy the requirements the Ohio Power Siting Board (OPSB). Through consultation with the Ohio Historic Preservation Office (OHPO), a maximum 1,000-foot (304.8-meter) radius from the footprints of Project components was established; this was refined, as appropriate, based on landforms, vegetation, and terrain features which affected the viewshed and determined the final Area of Potential Effect (APE).

Background research identified four cemeteries and two cultural resources surveys within one mile (1.6 kilometers) of the Project's limit of disturbance (LOD). No previously identified cultural resources or cultural resources surveys were located within the APE.

The architectural and historical resources survey conducted in May 2017 identified one resource, the Hall Farmstead, within the APE. Although not a Section 106 project, as a standard practice, background research was conducted on the project area and the identified resource to develop a context for evaluating against National Register of Historic Places (NRHP) criteria, which are used by the OHPO to evaluate historical and architectural significance for state-funded or –permitted projects. In addition to its historical and architectural significance, the Hall Farmstead was evaluated for its level of integrity. Based on the results of this evaluation, the Hall Farmstead is recommended not eligible for listing in the NRHP.

Since the Hall Farmstead is not an NRHP-eligible resource, the Project does not maintain the potential to create an impact on historic properties. Therefore, CH2M recommends that no historic properties will be impacted by the Project, and no further work is required.

SECTION 1

Introduction

On behalf of American Electric Power Ohio Transmission Company (AEP Ohio Transco), CH2M HILL Engineers, Inc. (CH2M) of Cincinnati, Ohio, conducted an architectural and historical resources survey of the proposed Lamping Station Project (Project) in Washington Township, Monroe County, Ohio. CH2M also conducted a Phase I archaeological survey for the Project and will be submitting a Phase I survey report (see Haag 2017) to the Ohio Historic Preservation Office (OHPO) under separate cover. This architectural and historical resources report details the results of research, field survey, and the assessment of impacts for the Area of Potential Effect (APE) associated with the Project.

The purpose of this investigation was to locate and identify architectural and historical resources within the Project APE, using the guidelines from the Ohio Power Siting Board (OPSB) and the OHPO (OHPO 2014). These activities are stipulated within state legislation detailed in the Ohio Revised Code, Sections 149:51-149:54. In order to meet the requirements set for this legislation, several research strategies were employed:

- Background research, including a literature review using the OHPO online mapping system;
- Definition of an APE based on the potential for both direct and indirect (viewshed) effects from the Project;
- An architectural and historical resources survey of the APE;
- An evaluation of Project impacts to National Register of Historic Places (NRHP)-eligible or -listed properties; and
- A summary of results into a report.

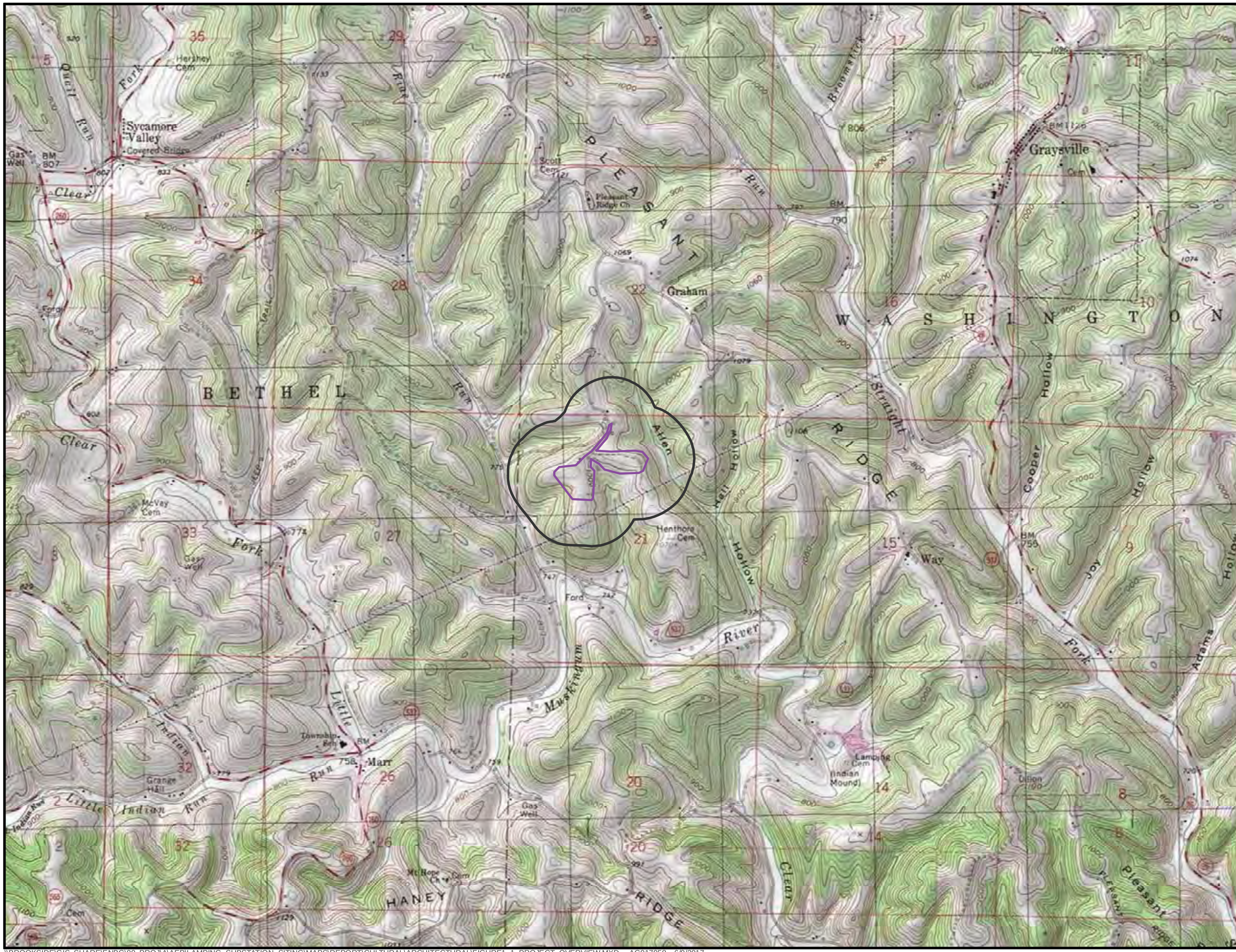
The background research was conducted by Ms. April Greenberg, M.A. in April 2017. The viewshed assessment and architectural and historical resources survey was conducted by staff archaeologist Galen K. Smith, M.A. and architectural historian Jared N. Tuk, M.A. on May 15, 2017. Mr. Tuk prepared the report summarizing findings.

1.1 Project Description

AEP Ohio Transco proposes to construct two new substations on a single parcel, approximately 2.1 miles (3.4 kilometers) southwest of Graysville, Monroe County, Ohio (Figure 1.1). These include a new 138/69 kV electric transmission substation and a new 345 kV electric transmission substation. In Ohio, a project of this scope requires Letter of Notification (LON) from the OPSB, which is part of the Public Utilities Commission of Ohio (PUCO).

The Project will be constructed on property currently owned by AEP Ohio Transco located along Floyd Hall Road, near its intersection with Dearth Ridge-Rias Run Road. Land use consists of pasture, former residential, and forested. The total proposed limit of disturbance (LOD) is approximately 24.8 acres (10 hectares), and the two substations will have a combined footprint of 6.2 acres (2.5 hectares) – 2.8 acres (1.1 hectares) for the 138/69 kV substation, and 3.4 acres (1.4 hectares) for the 345 kV substation.

Tree clearing is not anticipated for the Project, although should it become necessary, AEP Ohio Transco will utilize selective clearing techniques designed to minimize tree removal and preserve low-growing vegetation that poses no safety threat to the facilities. Access roads used during construction will utilize existing roads and will be restored to their original conditions following construction. These construction and subsequent maintenance activities proposed by AEP Ohio Transco are designed to result in a minimum of visual or vegetative disturbance to the area around the Project.



LOCATOR MAP

LEGEND:

- Project LOD
- Project APE

BASE MAP SOURCE:
USGS 7.5-minute Topographic Quadrangle:
Graysville, OH (published 1977)

N

0 610 1,220
Scale in Meters

0 2,000 4,000
Scale In Feet

AEP Lamping Station Project
Monroe County, OH

FIGURE 1.1
PROJECT OVERVIEW

DATE: 6/9/2017
CREATED BY: AG
REVIEWED BY: JT

ch2m

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1.2 Report Overview

This report contains six sections. The first section introduces the report and provides a description of the Project. Section 2 provides a definition of the APE and summarizes the methodology for the architectural and historical resources survey. Section 3 lists and briefly discusses previous architectural and historical surveys in the vicinity of the APE and provides a brief historical overview of the Project area. Section 4 describes the survey findings, NRHP eligibility evaluations, and an assessment of Project impacts. Section 5 provides a summary and recommendations for architectural and historical resources. Section 6 lists the references cited throughout the report. Figures and photographs are located within the text, when appropriate.

SECTION 2

Methodology

2.1 Area of Potential Effect

The APE considered potential impacts (both direct and indirect) to architectural and historical resources from the proposed Project. Through consultation with the OHPO, a maximum 1,000-foot (304.8-meter) radius from the footprints of Project components was established; this was refined, as appropriate, based on landforms, vegetation, and terrain features which affected the viewshed and determined the final APE.

Measures were taken to include only those areas within reasonable limits. For example, visual impacts from existing structures (including cellular towers, nearby natural gas drilling rigs, and existing electric transmission lines and towers) were evaluated and compared to the potential visual changes by the Project. Although no impacts from temporary, existing access roads are anticipated, the APE for these roads was defined as the roadway alignment and limited viewshed, as necessary, for any areas where tree clearing is planned.

2.2 Background and Literature Research

Background research on architectural and historical resources located within and in the vicinity of the APE, as well as on the general history of Monroe County, was conducted by CH2M using the OHPO online mapping database in April 2017, and published online histories in May and June 2017. In Monroe County, property-specific research was conducted using online resources from the Monroe County Auditor, Tax Map Department, and published histories documenting early settlers of Washington Township.

2.3 Field Survey and Data Entry

The field survey phase of this project involved systematic identification of buildings and structures within the Project APE. This resulted in the documentation of one architectural resource. This resource, including its primary building and contributing outbuildings, were photographed, mapped, and documented. CH2M recorded the architectural style, condition, and important features of each building or structure and noted any major changes or alterations. This collected information was used to evaluate the resource's architectural and/or historical significance.

2.4 Evaluation and Assessment of Impacts

The surveyed architectural resource was evaluated for its potential significance according to the NRHP Criteria for Evaluation (Appendix A), which are used as the basis for evaluating architectural and/or historical significance for state-funded or –permitted projects; the historic context of the Project area and surroundings; and guidelines contained in *National Register Bulletin 15-How to Apply the National Register Criteria for Evaluation* (National Park Service 2002). The architectural and historical resource surveyed as part of the Project was evaluated both for its potential significance according to the NRHP criteria (used by the OHPO for evaluating state significance), and for its architectural integrity.

SECTION 3

OHPO Research and Historical Overview

3.1 OHPO Background Research

CH2M conducted background research using the OHPO online mapping database in April 2017 to locate previously recorded cultural resources and surveys within or near the APE. A one-mile (1.6-kilometer) buffer from the Project's LOD was used to identify these previously recorded cultural resources and to provide information on the probability of identifying cultural resources within the APE. The OHPO online mapping database included a review of the Ohio Archaeological Inventory (OAI) (for historic-era sites), the Ohio Historic Inventory (OHI), Determination of Eligibility (DOE) files, the NRHP, historic cemeteries, historic bridges, National Historic Landmarks (NHLs), and previous cultural resources surveys.

The literature review for areas within one mile (1.6 kilometers) of the LOD identified four cemeteries and two cultural resources surveys (Figure 3.1). None of these cultural resources and/or surveys was located within 1,000 feet (304.8 meters) of the LOD (i.e., within the APE).

3.2 Cemeteries

The four previously identified cemeteries are scattered at various distances and in all directions from the Project area; however, none is within the APE. The closest cemetery to the APE is the Rock Hill-Scott Cemetery (OGS ID#8056), located approximately 550 feet (168 meters) northwest of the 1,000-foot limits of the viewshed APE, in neighboring Bethel Township. The Rock Hill-Scott Cemetery is a small family cemetery consisting of 15 graves dating from 1860 to 1914. Other cemeteries within one mile (1.6 kilometers) of the LOD are the Henthorn Cemetery, Pleasant Ridge Cemetery, and Flaming Cemetery. All of these are far beyond the limits of the APE.

3.3 Previous Cultural Resources Surveys

Two cultural resources surveys were recorded within one mile (1.6 kilometers) of the LOD. One of the surveys was a Phase I archaeological survey conducted on behalf of the Wayne National Forest (Beamer et al 1994). The second survey was an architectural and historical resources survey also conducted on behalf of the Wayne National Forest (Hardlines 1995). This latter survey, approximately one mile (1.6 kilometers) northwest of the LOD, identified OHI resources MOE0041513 and MOE0041613 (described below), which are each situated beyond the radius.

3.4 OHI Resources

Just beyond the one-mile (1.6-kilometer) radius, to the northwest and northeast of the Project, three OHI resources were identified. These resources consist of two single dwellings and one barn dating from 1830 and 1850 (Table 3.1). MOE0041513 and MOE0041613, recorded as part of the aforementioned Hardlines (1995) survey, are recorded as separate resources, although they are interrelated (a residence and a barn dating from 1850). Further removed from the one-mile (1.6-kilometer) radius is MOE0000514, a vernacular style residence dating from 1830. None of these resources is listed in the NRHP. Information on these resources was used to develop expectations about architectural resource types that may be encountered within the Project APE.