Phase I Archaeological Survey for the Highland – Magellan 138kV Transmission Line Project, Trumbull County, Ohio (2021-TRU-50335)

March 2021

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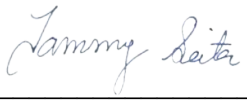

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ABSTRACT

In March 2021, AECOM, on behalf of American Transmission Systems, Inc (ATSI), a FirstEnergy (FirstEnergy) company, conducted a Phase I archaeological survey for the proposed Highland Magellan 138 kV Transmission Line (Project) located near Lordstown and Warren, Trumbull County, Ohio (2021-TRU-50335). This Phase I archaeological survey report continues Section 106 consultation for the Project with the United States Army Corps of Engineers, the Ohio Power Sitting Board, and the Ohio Historic Preservation Office (OHPO).

In response to the January 2021 submittal of a desktop report and Section 106 initiation package, the OHPO indicated, in correspondence dated February 5, 2021, that a Phase I archaeological survey would be required to address the potential of the Project to impact archaeological resources. The OHPO concurrently approved the proposed Area of Potential Effects (APE) for consideration. As part of this Project, ATSI is proposing to install 7.21 kilometers (4.48 miles) of new 138 kV transmission line, through construction of fifteen (15) new wood structures, twenty-five (25) new steel structures, relocation of one (1) structure, and temporary use of workspaces and access roads. The elements of the Project west of Todd Avenue are located within the Lordstown Battery Plant Project (the "GM Survey", 2019-LRP-01800 and 2019-TRU-46596) were previously reviewed by the OHPO in 2019; these elements, including twenty (20) of the new structures, were therefore excluded from the APE of the current Project.

The AECOM Phase I archaeological field reconnaissance of the Project examined a total of 15.11 hectares (37.34 acres) of potential land requirements, through survey of 723 sample loci (SL) at the OHPO-recommended survey interval of 15 meters (49-feet) within the approved APE. Of the 721 surveyed SL, 139 were hand-excavated as shovel tests, with the remainder visually surveyed due to modern disturbance, steep slope, water inundation or high levels of ground surface visibility (within tilled agricultural fields).

The desktop review indicated the presence of two inventoried archaeological sites extending either within, or directly adjacent to the Project; sites 33TR0257 and 33TR0258 were previously assessed as not eligible for the National Register of Historic Places (NRHP), and the March 2021 survey did not encounter any additional materials in the vicinity of either site. The March 2021 survey resulted in the identification of two undocumented archaeological sites within the Project APE. Subsequently inventoried as sites 33TR0283 and 33TR0284, these two sites are characterized as a broad field dump of twentieth century domestic and architectural debris and an ephemeral scatter of prehistoric and historic materials, respectively. Both resources are recommended as not eligible for the NRHP. Based on these findings, no further archaeological investigations appear warranted prior to the construction of the Project.

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1. Introduction

On behalf of American Transmission Systems, Incorporated (ATSI), a FirstEnergy (FirstEnergy) company, AECOM Technical Services, Inc. (AECOM) conducted the Phase I archaeological investigations for the proposed Highland Magellan 138 kV Transmission Line in Trumbull County, Ohio (the Project; 2021-TRU-50335). The Project will involve the installation of 7.21 kilometers (4.48 miles) of new 138kV transmission line, through installation of 40 new transmission structures, replacement of one structure, and temporary use of access roads and workspaces (see **Appendix A, Figures 1-1** and **1-2**). Section 106 consultation for this Project was initiated in January 2021 through submittal of a desktop report package to the Ohio Historic Preservation Office (OHPO). The following Phase I archaeological report is therefore intended to continue consultation with the OHPO, the Ohio Power Siting Board (OPSB) and the United States Army Corps of Engineers, the lead federal agency for this undertaking. A companion volume, detailing the Phase I architectural history investigations conducted in support of the Project, is being submitted concurrently under separate cover.

The purpose of the Phase I archaeological investigations detailed herein was to locate and identify cultural resources within the Area of Potential Effects (APE) approved by the OHPO for this survey in correspondence dated February 5, 2021 (see **Appendix C**). These investigations were accomplished using the protocols set forth by the OHPO, in their 1994 document entitled *Archaeology Guidelines*. Identification of resources allowed for an assessment to be made of their significance considering the criteria for inclusion in the National Register of Historic Places (NRHP). Recommendations were then formulated for avoidance or mitigation procedures of any culturally sensitive or significant properties. These activities are stipulated within legislation enacted over the past 50 years, including the National Historic Preservation Act of 1966 (and its subsequent amendments) and the regulations (36 CFR Part 800) outlined by the Advisory Council on Historic Preservation.

To accomplish this, these research strategies were employed:

- Background research, specifically a literature and physiographic review, through the OHPO in Columbus, Ohio; and,
- Field reconnaissance of the APE, which included surface inspection of exposed soils and fixed-interval shovel testing in areas not previously disturbed by construction and development, not covered in standing water or wetland vegetation, or excessively sloped.

The archaeological field reconnaissance of the Project APE was conducted in March 2021, under the direction of AECOM Senior Project Archaeologist Tammy Seiter, M.A, RPA, assisted by Archaeological Field Directors Jonathan Stroik, M.S., RPA, Aaron Ridley, B.A. and Kyle Johnson, B.A. Stephen Hinks served as Principal Investigator for this Project. The mapping data necessary for fieldwork, and the figures included with this volume, were developed by Ben Goodwin, M.A., RPA.

In accordance with the *Archaeology* Guidelines (OHPO 1994), the archaeological resources identified within the direct APE by the AECOM Phase I archaeological survey

were to be subject to appropriate analyses and assessed with regard to eligibility for listing in the NRHP. NRHP eligibility determinations were dependent upon the application of the recovered data set to the following criteria:

- *The capacity of a particular resource to make a contribution to the broad patterns of American history (Criterion A)*;
- *The degree to which the property is associated with a significant person or persons from the nation's past (Criterion B)*;
- *The degree to which a particular property exhibits distinctive characteristics of design or construction representative of a particular architectural style, or having high artistic value such as the work of a master (Criterion C)*; and,
- *The potential of a particular resource in regard to providing important information pertaining to an understanding of prehistory or history* (*Criterion D*).

1.1 Project Description

ATSI is proposing the construction of 4.48-miles of new 138 kV transmission line as part of the Highland Magellan 138 kV Transmission Line (Project) located near Lordstown and Warren, Trumbull County, Ohio. Of the 4.48-miles of new 138 kV transmission line, approximately 1.79-miles will involve the installation of the new 138kV transmission line on an open arm of the existing structures associated with the Highland-Lordstown No. 1 345 kV Transmission Line. As part of this Project, ATSI is proposing to install fifteen (15) new wood structures, twenty-five (25) new steel structures, and adding the new 138kV transmission line to ten (10) existing structures. Additionally, one existing structure (Structure Number 41519) along the existing Hanna-Highland 345kV transmission will be relocated to accommodate the new Highland-Magellan 138kV Transmission Line. The Project originates at the existing Highland Substation and will connect to the Magellan Substation located within the Ultium Cells, LLC Lordstown Battery Cell Plant, a General Motors, LLC (GM) and LG Chem joint venture, which is currently under construction. Access to the Project will be provided by existing private and public roads and proposed temporary access roads. The approximate coordinates for the eastern and western termini of the Project are 41.1508°, -80.868° and 41.1772°, -80.8233°, respectively.

As currently defined, the Project encompasses a transmission line alignment route located through woodlots, wetlands, floodplains, industrial lots, existing transmission right-of-way (ROW), and urban residential properties, which represents the potential new 138kV transmission line for FirstEnergy. The Project consists of the proposed transmission alignment to be installed atop existing and new utility structures through use of temporary access roads and workspaces (including pull sites, crane pads, etc.). The temporary workspaces necessary for use during the construction activities will be utilized for access and as staging areas for loading and unloading of trucks, the operation of construction equipment, access roads, and use as spoil areas.

The proposed Project begins at the existing Highland Substation located southeast of the intersection of Highland Avenue and Brunstetter Road to the northeast of the Village of Lordstown, Ohio. The Project proposes a new alignment and structures within the existing substation, starting at the southeast corner of the facility. The new alignment would briefly

head east, then south, before turning west and following the southern edge of the substation. The Project would utilize existing 138kV structures once it reaches the west side of the substation, and trend west-southwest until it nears the CSX Railroad. The Project heads south after crossing the railroad, crossing Salt Springs Road, for approximately 975 meters (3,199 feet) before beginning a new alignment. The proposed route would then trend southwest until it reaches the Norfolk Southern Railroad, at which point it would parallel the northern side of the railroad before crossing over both it and Highway 45.

The elements of the Project located to the west of Tod Avenue are situated within an area which has been surveyed previously for cultural resources (2019-LRP-01800 and 2019-TRU-46596) and an extensive modern industrial facility. The proposed alignment in this section follows the southern side of the railroad, looping north towards the Norfolk Southern Goodman Yard before heading south to tie into the proposed Magellan Substation, an area covered previously by the "GM Survey" (the boundaries of which are noted on the mapping provided in Appendix A to this volume). This section of the Project is not included in the APE considered for these investigations, due to prior survey work and extensive modern disturbance, as approved by the OHPO in correspondence dated February 5, 2021.

1.2 Definition of the Area of Potential Effects

All stages of a cultural resources study rely on an explicitly defined APE, which reflects an agreement by key parties as to what constitutes the physical footprint of the undertaking, as well as the zone within which a suite of potential ancillary effects may be experienced. The APE for a given project has two components: the direct APE, or zone of ground-disturbance, and the viewshed, or indirect APE, that is concerned with visual effects upon the surrounding landscape and properties. Regarding cultural resources, the APE for the Project consists of land requirements that will be directly impacted by ground disturbance during construction, referred to hereafter as the direct APE.

For the Project, the direct APE considered for archaeological resources is comprised of the physical limits of proposed ground disturbance and construction relative activities associated with the Project. As noted above, the elements of the Project situated to the west of Tod Road occur within the limits of previous cultural resources investigations (2019-LRP-01800 and 2019-TRU-46596) and are therefore not considered as part of the current APE or Phase I archaeological survey. The direct APE examined in March 2021 measures approximately 15.11 hectares (37.34 acres) in size, and includes the proposed structure locations, temporary-use workspaces (pull sites and spoil areas) and access roads, as approved by the OHPO in correspondence dated February 5, 2021. The indirect (viewshed) APE is addressed in the companion Phase I architectural history volume.

1.3 Report Organization

The following report and supporting documentation are presented in the format established by the OHPO for Phase I archaeological survey report submittals. Therefore, the report begins with a detailed Research Design, synthesizing the archival research and environmental data to develop an analytical framework for locating and assessing cultural resources within the APE of the Project (**Chapter 2.0**). A synopsis of the environmental and cultural factors defined for the portion of the Project in this area of Ohio is presented

in **Chapters 3.0** and **4.0**, respectively. The methodologies employed by AECOM during the conduct of the Phase I survey are detailed in **Chapter 5.0**. The discussion and analyses of the data collected during the Phase I survey are presented in **Chapter 6.0**. A discussion of the resources identified during the Phase I survey are detailed in **Chapter 7.0**. A summary of the conclusions and recommendations generated from the AECOM Phase I archaeological survey is presented in **Chapter 8.0**. Supporting documents, including mapping for the Project, field photography, field forms, OAI sites forms and the Unanticipated Discovery Plan are provided in **Appendices A through E**.

2. Research Design

AECOM conducted the Phase I survey in accordance with the OHPO (1994) guidelines in all proposed workspaces of the Project. The direct APE was subjected to visual inspection, pedestrian survey, and shovel test excavations on a 15-meter (49-foot) interval. Further discussion of the field methodology employed during the Phase I investigation is presented in **Chapter 5.0**.

In an effort to efficiently and effectively complete a Phase I archaeological survey of the additional land requirements for the Project, a Research Design was developed to guide the field reconnaissance. This Research Design was assembled by examining a variety of factors relevant to the Project, including: existing and prehistoric environmental conditions and vegetation patterns; the known archaeological record of the region, both prehistoric and historic; previous archaeological and Cultural Resource Management (CRM)-related experience of the staff of AECOM; and the modern land use and development of the areas immediate to the Project. These various factors are discussed in greater detail in subsequent chapters; this chapter will synthesize those factors into the Research Design. Through the development of the Research Design, several questions can be posed, relevant to the survey, which can then be answered by the actual field reconnaissance of the additional Project land requirements.

A relatively moderate amount of systematic archaeological research has been recorded with the OHPO in the vicinity of the Project, primarily the result of energy infrastructure facilities, and the resultant need for Section 106-related archaeological investigations. The archival research conducted for the Project included a review of the cultural resource data maintained by the OHPO, specific to a 1.6-kilometer (one-mile) radius around the proposed Project APE.

2.1 Research Questions

The above factors, when analyzed in conjunction with the scope of the field reconnaissance, assist in generating specific research questions to guide the Project and therefore enhance the research potential of the results collected by the AECOM Phase I survey. These questions include:

1. What types of prehistoric sites can be expected to be found within the direct APE of the Project, and, if identified, how do these prehistoric resources fit into the archaeological record of prehistoric activity in Trumbull County?

2. Based on the distribution of cultural materials collected during the Phase I investigations, what conclusions can be drawn about site integrity?

3. The historic-era landscape of Trumbull County which contains elements of the additional Project land requirements can be characterized as predominantly rural and agricultural, with sporadic residential and commercial structures scattered along the primary road networks that linked the major towns with the agrarian countryside. Is there any evidence of historic-era activity within or in close proximity to margins of the Project?

4. Are there any archaeological resources present within the additional land requirements of the Project that are eligible, or potentially eligible, for the NRHP?

2.2 Archival Research

AECOM conducted the Section 106 archival research records check through the OHPO's online database in January 2021. The parameters of this record check involved examination of OHPO-inventoried cultural resources and surveys within a 1.6-kilometer (one-mile) buffer from the proposed Project APE. This archival research focused on the collection of available archival data relevant towards defining the extent of prehistoric and historic occupation within and around the Project Trumbull County. AECOM accessed available information archived with the OHPO for the Project locations remotely. As stipulated in *Archaeology Guidelines* by the OHPO, the archival examination of the Project areas include a determination if known archaeological sites or historic buildings, structures, and objects are recorded within or near the Project areas, as well as a determination if there has been any previous surveys or excavations. The nature and extent of previous land use and ground disturbance that would affect the preservation of archaeological sites is also considered. Research focused on the proposed limits of the Project, as well as a 1.6-kilometer (one-mile) study area around the Project locations, which represents a standard literature review search area and complies with OHPO standards. The following archival sources were examined:

- National Register of Historic Places (NRHP) listed properties and districts;
- Ohio archaeological sites recorded in the Ohio Archaeological Inventory (OAI);
- Historic resources recorded in the Ohio Historic Inventory (OHI);
- Ohio Genealogical Society Cemeteries;
- Previous Cultural Resources Management (CRM)-related reports and surveys (filed with the Ohio SHPO); and
- Historic-era mapping of the Project location.

The following table quantifies the archival data relative to the Project APE in Trumbull County (**Table 2-1**).

Table 2-1. Summary of Ohio Cultural Inventory and NRHP Data, Relative to the Project APE

Cultural Resources Data Set	Frequency Relative to Project APE			
	Within 1.6 kilometers (1 mile)	Within 300 meters (1,000 feet)	Within 30 meters (100 feet)	Within Project Location
NRHP Properties and Districts	1	0	0	0
OAI Archaeological Site	16	2	2	2
OHI Aboveground Resources	30	3	1	0
Previous Cultural Resources Reports	6	4	2	2

Cultural Resources Data Set	Frequency Relative to Project APE			
	Within 1.6 kilometers (1 mile)	Within 300 meters (1,000 feet)	Within 30 meters (100 feet)	Within Project Location
Ohio Genealogical Society Cemeteries	2	0	0	0

As indicated in the **Table 2-1** above, there are 30 historic aboveground resources, 16 archaeological sites, six prior cultural resources reports, two cemeteries, and one NRHP listed resource inventoried within the 1.6-kilometer (one-mile) study area in Trumbull County, Ohio. Of these, however, only two archaeological sites and two prior cultural resource reports are inventoried within the Project APE. A map of these results can be found in **Appendix A**, as **Figure 2-1**.

The following sections provide a more detailed discussion of the archival data to provide a broad cultural context for the Project location.

2.2.1 National Register of Historic Places Properties

A single NRHP property occurs within the Archival Study Area considered for the Project. This property, the Almon G. McCorkle House (NRHP #82003659), is a private residence built in 1895. According to the NRHP nomination form, this structure is significant as a well-restored surviving example of a late nineteenth century farmhouse in an area which has undergone extensive industrial development, and also as an example of fine interior carpentry in the Queen Anne style. The McCorkle House was entered into the NRHP in 1982. While this property is located approximately 448.0 meters (1,469.9 feet) from the Project APE, the most proximal aboveground structure proposed for installation is situated over 0.8 kilometers (0.5 miles) to the southeast. As currently designed, this new element of the Project is not directly visible from the property, due to several intervening residential structures, trees, and existing transmission lines. Therefore, potential effects to the McCorkle House are not anticipated.

2.2.2 Ohio Archaeological Sites Recorded in the Ohio Archaeological Inventory

The examination of the OAI database indicated the presence of 16 inventoried archaeological resources within, or up to 1.6 kilometers (one mile) from the Project in Trumbull County. Two of these resources, sites 33TR0257 and 33TR0258, have been recorded near or within the proposed Project limits. Both of these sites yielded exclusively historic-era materials and were assessed as not eligible for the NRHP. The following table includes a summary of the relevant data collected from the 16 archaeological resources recorded within the Archival Study Area, presented by distance from the Project; the NRHP status of each resource, as indicated on the individual OAI site forms, is also provided.

Table 2-2. OAI Sites Recorded Within 1.6 Kilometers (One Mile) of the Project

Site ID	Site Type / Temporal Component	NRHP Status	Distance to Project
33TR0257	Historic- Nineteenth/Twentieth Century Occupation	Not Eligible	Within
33TR0258	Historic- Early to Late Nineteenth Century Occupation	Not Eligible	1.2 meters / 3.8 feet
33TR0232	Prehistoric- Indeterminate Isolated Findspot (Biface Fragment)	Not Assessed	471.6 meters / 1,547.6 feet
33TR0207	Prehistoric- Indeterminate	Unknown	517.8 meters / 1,698.9 feet
33TR0208	Prehistoric- Indeterminate	Unknown	534.0 meters / 1,751.9 feet
33TR0272	Prehistoric- Indeterminate Isolated Findspot	Not Assessed	578.8 meters / 1,899 feet
33TR0233	Prehistoric- Indeterminate Isolated Findspot (Secondary Thinning Flake)	Not Assessed	630.6 meters / 2,068.9 feet
33TR0235	Prehistoric- Indeterminate Lithic Scatter	Not Assessed	638.4 meters / 2,2,094.5 feet
33TR0234	Prehistoric- Indeterminate Isolated Findspot (Primary Thinning Flake)	Not Assessed	674.1 meters / 2,211.5 feet
33TR0096	Prehistoric- Woodland Period Lithic Scatter	Not Assessed	938.3 meters / 3,078.4 feet
33TR0273	Historic- Indeterminate – Foundation Remains of Outbuildings	Not Assessed	1,067.7 meters / 3,503.0 feet
33TR0229	Prehistoric- Indeterminate Isolated Findspot (Secondary Reduction Flake)	Not Assessed	1,219.1 meters / 3,999.7 feet
33TR0097	Prehistoric- Late Woodland Period Lithic Scatter	Not Assessed	1,219.2 meters / 4,000.1 feet
33TR0230	Prehistoric- Indeterminate Isolated Findspot (Projectile Point)	Not Assessed	1,383.1 meters / 4,537.7 feet
33TR0231	Prehistoric- Indeterminate Isolated Findspot (Projectile Point)	Not Assessed	1,406.1 meters / 4,613.2 feet
33TR0259	Prehistoric- Indeterminate Isolated Findspot (Chert Shatter)	Not Assessed	1,528.4 meters / 5,014.3 feet

A review of the OAI site forms filed for each of the resources listed in the table above provides additional information on the character of each resource. Two of the resources identified within the Archival Study Area were determined not eligible for inclusion in the

NRHP, while 12 sites were not assessed for eligibility and the status of the remaining two resources is unknown.

2.2.3 Historic Resources Recorded in the Ohio Historic Inventory

Examination of the OHI database identified 30 aboveground resources within 1.6 kilometers (one mile) of the proposed Project APE. None of these resources are located within the Project area, and only two (OHI ID #TRU0104122 and TRU0104022), a pair of mid-late nineteenth century residential dwellings located along Todd Avenue Southwest near the western terminus of the Project, are situated within the indirect (viewshed) APE proposed for the Project.

One inventoried aboveground resource, the Amanda Woodward Wilson House (OHI ID# TRU0104122), is located in the vicinity of the Project area, at a distance of approximately 346 meters (106 feet). The OHI form for this resource indicates it was assessed previously as not eligible for the NRHP. In similar fashion, the James Wilson House (OHI ID# TRU0104022) is located just north of the Amanda Woodward Wilson House along US 45, approximately 113 meters (371 feet) north of the Project and has been assessed as not eligible for the NRHP. These two aboveground resources are the only inventoried structures present within the indirect (viewshed) APE proposed for the Project. The other OHI resource extant within 300 meters (1,000 feet) of the Project, the Joseph F. Caskey House (OHI ID# TRU0103522) is situated 226 meters (742 feet) east of the Project along Carson Salt Springs Road. While this resource has been recommended as eligible for the NRHP, it is separated from the Project by a wooded lot and several residential properties along the road alignment and is located well outside of the proposed indirect APE for the Project. The remaining 27 structures are located between 113.3 meters (371.7feet) and 1,360.9 meters (4,464.8 feet) from the proposed Project area.

The primary historic use of the majority of the structures within the Archival Study Area are residential dwellings (n=27), as well as a barn, outbuildings, and a church. The date range of this inventory extends from as early as ca. 1830 (OHI ID #TRU103722, the Lordstown Christian Church located well over 0.8 kilometers/ 0.5 miles from the Project) through 1963 (OHI ID #MAH0174802, a residential dwelling).

2.2.4 Prior Cultural Resources Surveys

The archival research study identified six prior cultural resources survey reports on file with the OHPO within the Archival Study Area considered for the proposed Project route. Each of these reports describes Phase I-level archaeological surveys. Two of these prior reports (Thomann and Locking 2008, Chidester and Bauschard 2016) describe Phase I lateral-corridor surveys which extend across sections of the Project. The following table lists all six reports, sorted by distance from the proposed Project APE.

Table 2-3. OAI Sites Recorded Within 1.6 Kilometers (One Mile) of the Project

NADB	Report Title	Author	Date	Distance to Project
17832	*Phase I Cultural Resources Investigation Report for the Infrastructure Replacement Project - Line 243 in Lordstown Township, Trumbull County and Jackson Township, Mahoning County, Ohio*	Daniel Thomann, Bonnie L. Locking	2008	Within
20302	*A Phase I Archaeological Survey of Proposed Water and Sanitary Sewer Lines Serving the Lordstown Energy Center, Village of Lordstown, Lordstown Township (T3N R4W), Trumbull County, Ohio*	Robert C. Chidester, Philip R. Bauschard	2016	Within
19823	*Phase I Archaeological Investigations for the Approximately 12.6 ha (31.15 ac) Lordstown Energy Center in the Village of Lordstown, Trumbull County, Ohio*	Ryan J. Weller	2015	72.3 meters / 238.1 feet
18731	*Phase I Cultural Resources Management Survey for the 17.8 ha (44 ac) Henn Industrial Park Development in Lordstown Township, Trumbull County*	Justin Zink	2010	212.5 meters / 697.0 feet
14920	*A Phase I Inventory and Archaeological Survey for the Country Basket Collections Site: A 10.3 Acre Tract in Lordstown Township, Trumbull County, Ohio*	David J. Soldo	2002	389.2 meters / 1,277.0 feet
20494	*Phase I Archaeological Investigations for the Approximately 55.9 ha (138 ac) Trumbull Energy Facility in the Village of Lordstown, Trumbull County, Ohio*	Ryan J. Weller	2017	499.5 meters / 1,638.9 feet

Review of these reports provide some indication as to the potential for the presence of cultural resources through systematic survey work across this portion of Trumbull County. In summary:

- The Thomann and Daniel 2008 *Phase I Cultural Resources Investigation Report for the Infrastructure Replacement Project – Line 243 in Lordstown Township, Trumbull County and Jackson Township, Mahoning County, Ohio* report describes the field survey of a proposed pipeline replacement project in Trumbull and

Mahoning counties, Ohio. A systematic pedestrian survey, along with shovel testing, was conducted in late May and early June 2008 within the proposed project location. Three isolated prehistoric resources were identified along the project corridor, none of which were recommended as eligible for inclusion in the NRHP/

- The September 2016 *A Phase I Archaeological Survey of Proposed Water and Sanitary Sewer Lines Serving the Lordstown Energy Center, Village of Lordstown, Lordstown Township (T3N R4W), Trumbull County, Ohio* report, authored by Chidester and Bauschard, describes the survey of a proposed water line and sanitary sewer line in the Village of Lordstown, Lordstown Township, Trumbull County, Ohio. Survey methods included visual inspection of the project area, as well as shovel testing at 15-meter (49-foot) intervals in areas where ground surface visibility was less than 50 percent. No archaeological resources were identified during this Phase I survey.

- Ryan J. Weller's 2015 *Phase I Archaeological Investigations for the Approximately 12.6 ha (31.15 ac) Lordstown Energy Center in the Village of Lordstown, Trumbull County, Ohio* report describes a Phase I survey for the proposed 12.6-hectare (31.15-acre) Lordstown Energy Center in the Village of Lordstown, Trumbull County, Ohio. The fieldwork involved subsurface testing, surface collection, and visual inspection of the project locations. No archaeological resources were identified during this field survey, and no further archaeological was deemed necessary.

- The 2010 report authored by Justin Zink, *Phase I Cultural Resources Management Survey for the 17.8 ha (44 ac) Henn Industrial Park Development in Lordstown Township, Trumbull County* describes a Phase I survey for the 17.8-hectare (44-acre) Henn Industrial Park Development in Lordstown Township, Trumbull County, Ohio. This survey involved subsurface testing, surface collection, and visual inspection of a soybean field, grassed/fallow field, and dense undergrowth scrub area. Four archaeological sites were identified during this survey, 33Tr232 through 33Tr235, none of which were recommended eligible for the NRHP.

- David J. Soldo's 2002 report, *A Phase I Inventory and Archaeological Survey for the Country Basket Collections Site: A 10.3 Acre Tract in Lordstown Township, Trumbull County, Ohio*, details an archaeological field reconnaissance survey of the Country Basket Collections site, a 4.17-hectare (10.3-acre) tract of land south of Lordstown Village, Trumbull County, Ohio. A five-meter interval pedestrian survey was conducted at this location, and two isolated prehistoric resources were identified. The subsequent subsurface testing at these two isolated finds did not recover additional material, therefore no further testing was deemed necessary.

- Ryan J. Weller's 2017 report, *Phase I Archaeological Investigations for the Approximately 55.9 ha (138 ac) Trumbull Energy Facility in the Village of Lordstown, Trumbull County, Ohio* depicts additional Phase I survey of 55.9 hectares (138 acres) of land requirements for the Trumbull Energy Center. According to the report, a sizeable portion of the project area was previously investigated, and fieldwork within the 2017 report focused on areas not addressed

by the prior investigations. A historic-period archaeological site, 33Tr0273 was identified, but was not regarded as being a significant cultural resource.

2.2.5 Ohio Cemeteries Recorded with SHPO

Two historic-age cemeteries have been inventoried within the Archival Study Area of the proposed Project. Neither of these cemeteries are located within 1,000 meters (3,281 feet) of the Project. Additional information regarding these cemeteries, including the dates they were established, number of burials, etc., were not available within the OAI database.

Table 2-4. Historic-Age Cemeteries Inventoried within 1.6 Kilometers (One Mile) of the Project

OGS ID	Cemetery Name	Date	Distance to Project
11648	Soaptown	Unknown	1,113.2 meters / 3652.1 feet
11645	Center	Unknown	1,583.5 meters / 5195.1 feet

2.2.6 Historic-Era Mapping

Concurrent with the archival research conducted into the Ohio OHI and OAI databases, available historic-era mapping was examined in an effort to better define the historic character of the Project area. Examination of these resources provides additional information regarding the historic occupation and utilization of the Project location, and the potential for the presence of undocumented historic-age resources (both archaeological and aboveground) within the potential limits of the Project. The following table lists the mapping resources consulted for the desktop review.

Table 2-5. Historic-Era Mapping Consulted for the Project

Date	Publisher	Map Title	Attributes
1856	P.J. Browne	*Map of Trumbull County, Ohio*	Townships, towns, roads, railroads, streams, parcel boundaries, landowners, dwelling locations
1874	L.H. Everts	*Atlas of Trumbull County, Ohio*	Townships, towns, roads, railroads, streams, parcel boundaries, landowners, dwelling locations
1899	The American Atlas Company	*Atlas and Directory of Trumbull County, Ohio*	Townships, towns, roads, railroads, streams, parcel boundaries, landowners, dwelling locations
1914	William C. Mills	*Archaeological Atlas of Ohio*	Prehistoric sites within Ohio
1985	Ruth Allen	*Trumbull County Land Ownership Maps 1830, 1840, 1850*	Parcel boundaries and landowners
1950-2017	n/a	Available aerial imagery of Trumbull County, Ohio	Roads, structures, land-use patterns

Date	Publisher	Map Title	Attributes
1908, 1959, 1970, 1979, 1984, 1994	USGS	*Warren, OH* 7.5-minute topographic quadrangle	Roads, structures, topography
1959, 1970, 1979, 1987, 1994	USGS	*Newtown Falls, OH* 7.5-minute topographic quadrangle	Roads, structures, topography
1986	USGS	*Youngstown, OH* 1:100,000 topographic quadrangle	Roads, structures, topography
1950, 1956, 1962	USGS	*Cleveland, OH* 1:250,000 topographic quadrangle	Roads, structures, topography

As outlined above, this desktop review examined extant historic-era mapping dating from 1856 through the modern era, in addition to twentieth century aerial imagery available online for this portion of Trumbull County. In general, these maps and aerial images indicate the area surrounding the Project has seen significant industrial developments outside the Village of Lordstown, as well as an increase of residences, starting in the mid-twentieth century. The proposed Project itself, however, typically avoids any dense residential or industrial areas, with the exception of its southern terminus.

- The 1856 *Map of Trumbull County, Ohio* shows roads, railroads, major towns, parcel boundaries and acreage, dwelling locations, and streams. The two major roads leading into Lordstown, Salt Springs Road and Highway 45, are depicted on this mapping.

- The 1874 *Atlas of Trumbull County, Ohio* shows roads, railroads, major towns, parcel boundaries and acreage, dwelling locations, and streams. This map shows further development of the Village of Lordstown.

- The 1899 *Atlas and Directory of Trumbull County, Ohio* displays information similar to the two previous sources, with a fairly dense town center of Lordstown and sparse residences outside of the town limits.

- The 1914 *Archaeological Atlas of Ohio* displays the locations of prehistoric sites within Ohio, including Trumbull County. No archaeological resources are situated within the Project area on this mapping. The closest resources are located more than three miles away, northeast of Lordstown.

- The 1985 Trumbull County Land Ownership Maps 1830, 1840, 1850 document compiled by Ruth Allen shows the various landowners within the Project area.

- An examination of the sequence of mid-twentieth century and early twenty-first century aerial imagery (1950-2017), in addition to the USGS quadrangle mapping of this area (1908-1994), provides further indication of the late historic period land-use relative to the Project area. Both the aerial imagery and the USGS mapping depict extensive industrial development starting in the mid-nineteenth century, primarily attributed to the Lordstown Military Reservation northwest of Lordstown, as well as the GM Lordstown Complex to the southwest. Prior to this period, the

landscape typically contained a relatively tight grouping of residences and businesses within the Lordstown community, with sparse residences along the roadways outside of the village boundary.

In summary, the sequence of historic maps and aerials suggest a very limited degree of sustained occupations and development within the Project APE during the historic period and modern era. The existing transmission line corridors are evident across this area during the second half of the twentieth century, which represents the primary intrusions into the Project APE. These data suggest a limited potential for the presence of historic archaeological deposits within the APE, and any that could remain extant are more likely to be encountered adjacent or in close proximity to historic road alignments (which have generally remained consistent into the modern era).

3. Environmental Overview

The following narrative describes the prehistoric and historic environmental setting of the Project in Trumbull County, Ohio, in order to develop a context for understanding the location and preservation of cultural resources. Environmental conditions, including climate and the related floral and faunal communities, significantly influenced the type and extent of prehistoric and historic settlement and subsistence patterns.

3.1 Physiography

The *Soil Survey of Trumbull County, Ohio* states that the Project area is in the Glaciated Appalachian Plateau region of Ohio (USDA 1992). Glacial advances during the Pleistocene deposited material that covers the underlying bedrock. The bedrock occurs as three layers: Devonian, Mississippian, and Pennsylvanian. Devonian, the oldest of the three layers, are Ohio Shale and found in the northwestern part of the county. Mississippian rocks, the middle layer, are the shales and sandstones of the Berea Formation and the overlying Cuyahoga Formation, which underlie most of the county. The Pennsylvanian-aged Pottsville Group underlie the southwestern and southeastern parts of the county (USDA 1992).

The USDA (1992) states that Trumbull County was covered by several glaciers during the Pleistocene. The material deposited by the glaciers ranges from a few feet to almost 100 feet in thickness. It contains sandstone and shale fragments that were broken off from the bedrock locally as the glaciers advanced. It also contains limestone and igneous fragments, which originated from much farther north. The glacial material deposited by the two older glaciers is buried below that of the younger Wisconsinan Glacier (USDA 1992).

According to the USDA (1992), the northern, western, and south-central parts of the county generally are nearly level and gently sloping. The rest of the county, including Hubbard, Brookfield, Liberty, and Hartford townships, is more sloping and is dissected by streams. The lowest elevation in the county, 242 meters (795 feet) above sea level, is in an area along the Grand River where Trumbull and Ashtabula counties meet. The highest, at 390 meters (1,280 feet), is on Trautman Hill, a little more than two miles north of Orangeville along the Pennsylvania state line (USDA 1992).

The county is drained by the Mahoning and Grand rivers and tributaries of the Shenango River (USDA 1992). The Grand River runs northward to Lake Erie from the north base of the Defiance End Moraine. The Mahoning River and its tributaries drain areas on both sides of the Defiance End Moraine, but the direction of the flow is generally southward. Yankee and Pymatuning creeks drain the eastern part of the county, which flow into the Shenango River. Most of the glacial outwash in the county is deposited along streams that run south and east from the Defiance End Moraine toward the Ohio River (USDA 1992).

3.2 Soils

The soils in Trumbull County range from just a few feet to bedrock to almost 30 meters (100 feet) thick and generally contain sandstone and shale fragments that were broken off the bedrock as the glaciers advanced and contains limestone and igneous fragments that

originated much further north. The Project APE is situated in the central to eastern half of the County, where the soils of the till plains contain less clay than the western portion of the County. A total of 15 distinct soil types are documented as occurring within the Project APE (USDA-NRCS 2021), consisting of:

- Lordstown loam (LrB), 2 to 6 percent slopes, found on ridges and till plains, mostly loamy and well drained, 20-40 inches to bedrock.
- Wadsworth silt loam (WbB), 2 to 6 percent slopes, fond on till plains, loamy, somewhat poorly drained, typically deeper than 80 inches.
- Sebring silt loam (Sc), till substratum, 0 to 2 percent slopes, found on terraces, silt and loam, poorly drained, typically deeper than 80 inches.
- Wadsworth silt loam (WbA), 0 to 2 percent slopes, found on till plains, silt and loam, somewhat poorly drained, 18-30 inches to fragipan.
- Mahoning silt loam (MgA), 0 to 2 percent slopes, found on till plains, silt and loam, somewhat poorly drained, typically deeper than 80 inches.
- Mahoning silt loam (MgB), 2 to 6 percent slopes, found on till plains, silt and loam, somewhat poorly drained, typically deeper than 80 inches.
- Rittman silt loam (RsB), 2 to 6 percent slopes, found on till plains, silt and loam, moderately well drained, 18-36 inches to fragipan.
- Rittman silt loam (RsC), 6 to 12 percent slopes, found on till plains, silt and loam, moderately well drained, 18-36 inches to fragipan.
- Sebring silt loam (Sb), 0 to 2 percent slopes, found on terraces, silt and loam, poorly drained, typically deeper than 80 inches.
- Lorain silty clay loam (Lo), 0 to 2 percent slopes, found on glacial lakes, terraces, till plains, depressions, flats, very poorly drained, typically deeper than 80 inches.
- Carlisle muck (Ch), ponded, 0 to 2 percent slopes, found in Bogs and on till plains, swales on terraces, and lake plains, very poorly drained, typically deeper than 80 inches.
- Udorthents (Ud), loamy, well drained, typically deeper than 80 inches.
- Ellsworth silt loam (EhB), 2 to 6 percent slopes, found on till plains, silt and loam and clay, moderately well drained, typically deeper than 80 inches.
- Glenford silt loam (GfC), 6 to 12 percent slopes, found on terraces, silt and loam, moderately well drained, typically deeper than 80 inches.
- Fitchville silt loam (FcA), 0 to 2 percent slopes, found on terraces and lakebeds (relict), silt and loam, somewhat poorly drained, typically deeper than 80 inches.

3.3 Flora and Fauna

As the structure of vegetation controls the character and species composition of animal populations, it is "fundamental to hunting communities in determining their life style" (Evans 1978). This is also true for early Euro-American communities for whom vegetational patterns determined, in large part, the choice of settlement sites (Gordon 1969; Hulbert 1930). For example, Gordon (1969) reports, "stands of mixed oak, walnut, basswood, and black (sugar) maple had a high priority among the Woodland Indians and the early buyers of land for farming. They soon learned that the forest soils that supported such magnificent forests were possessed of extraordinary natural fertility."

The floral and concomitant faunal reconstructions are based on two types of evidence: palynological and early land survey records. The former indicates the types and frequencies of floral species present in an assemblage, while the latter data indicate the distribution of natural forest types prior to European settlement. The earliest vegetational patterns of the post-glacial succession and subsequent shifts in climax forest constituents are derived primarily from palynological evidence. More recent forest types (post-Hypsithermal) are assumed to have been quite similar to those present at the time of contact. Work done by Yarnell (1973) reveals that, "the climate probably remained much the same for the past 4,000 years...except for relatively minor fluctuations and the general vegetational patterns have not changed much during this period." With a stable climate, vegetational patterns over the past 4000 years in most of the eastern United States have also remained generally consistent. Consequently, direct historic reconstruction can be based provisionally on vegetation patterns observed at the time of the first European pioneers.

Within portions of northeastern Ohio, early settlers would have encountered mature deciduous forests with grassy glades. These mature deciduous forests are characterized as the Mixed Mesophytic Forest Region, Cumberland and Allegheny Plateaus section, in the Unglaciated Appalachian Plateaus, which is characterized with a mixed dominance of oak and hickory trees (Braun 1950). In sheltered topographic settings with deep soils, trees such as sugar maple, beech, tulip tree, basswood, northern red oak, cucumber tree, and black walnut would have grown, and shallower upland soils would have supported black and white oak, scarlet oak, chestnut oak, white ash, and red cedar. Pin oak, sweet gum, cottonwood, red maple, sycamore, willow, and river birch would have occurred along stream valleys.

The Project area is situated in a rural setting, with the majority of the acreage of the APE located within existing transmission corridors, which either fall within agricultural fields or are planted with native grasses that are maintained throughout the year to prevent brush and trees from growing. A smaller portion of the Project is located within woodlots, generally located south of Salt Springs Road and east of Tod Avenue.

Faunal resources across the region mirror those of the surrounding region and include mammals, birds, fish, shellfish, reptiles, and amphibians. Several large mammals that were important to prehistoric subsistence patterns that have been subsequently hunted into local extinction include elk or wapiti (*Cervus elaphus*), bison (a possible Late Prehistoric species), cougar (*Felis concolor*), black bear (*Ursus americanus*), and wolves (*Canis* sp.). Other large mammals that have survived include white-tailed deer (*Odocoileus virginianus*), beaver (*Castor canadensis*), and bobcat (*Felis rufus*). Bird

species that were important food items in prehistory include the eastern wild turkey (*Meleagris gallopavo*) and numerous migratory waterfowl.

3.4 Paleoenvironment

During the Late Pleistocene, portions of northeastern Ohio were covered in a coniferous forest consisting of spruce and fir trees, suited for the cool, moist climate (Braun 1950). At some time in the Late Pleistocene, there was a dry, warmer period that caused a shift from spruce and fir tree forests to pine and oak forests (Braun 1950).

Around 8000 years before present (B.P.) there was a warming/drying trend. During this period, oak and hickory dominated the landscape. At the end of the warming trend, around 4000 B.P., Braun (1950) characterizes this region as belonging to the Mixed Mesophytic Forest region. The Mesophytic Forest region covers a majority of the Unglaciated Allegheny Plateaus. The mixed mesophytic is considered the most complex and the oldest association of the Deciduous Forest Formation and is a community in which the dominant trees of the arboreal layer are communities of beech (*Fagus grandifolia*), tulip tree (*Liriodendron tulipifera*), basswood (*Tilia heterophylla*, *T. heterophylla* var. *Michauxii, T. floridana, T. neglecta*), sugar maple (*Acer saccharum*), chestnut (*Castanea dentata*), sweet buckeye (*Aesculus octandra*), red oak (*Quercus borealis* var. *maxima*), white oak (*Q. alba*), and hemlock (*Tsuga canadensis*) (Braun 1950:40).

Throughout the late nineteenth and early twentieth centuries, historic development of the area significantly altered the landscape in much of the region. Modern naturally occurring plants commonly consist of perennial grasses and weeds, non-coniferous and coniferous trees, non-coniferous and coniferous shrubs, and woody vines.

3.4.1 Fauna

During the Late Pleistocene, the development of open grazing lands and boreal forests would have supported a wide array of mammals adapted to cool climates. Evidence suggests that these types of biomes along the glacier's southern margins and the northern end of the unglaciated areas (such as the Project area) 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 (*Cervalces scotti*) (Cleland 1966; Prufer and Baby 1963; 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 has usually been assigned to some indeterminate temporal period beginning around 9000 B.P., was typified by a warmer climate with predominantly drier seasons. The megafauna of the Late Pleistocene suffered massive extinction. Some suggest that these extinctions began an estimated 12,000 B.P., and provide evidence suggesting that the processes that led to these extinctions included both the climatic changes and the hunting of the megafauna by Paleoindian hunters. Even minimal hunting, likely associated with the low birth rates of the megafauna, would have had pronounced negative effects on these animal populations (Burroughs 2005; Gibbons 2004). The megafauna were replaced by smaller animals that filled the opening faunal ecological niches. These smaller animals are similar to contemporary species.

Contemporary faunal resources typically would focus on woodland wildlife. Woodland wildlife consists of bird species such as ruffed grouse (*Bonasa umbellus*), woodcock (*Philohela minor*), thrushes, vireos, tanagers, and woodpeckers, and mammal species such as squirrels (*Sciurus* sp.), gray foxes (*Urocyon cinereoargenteus*), white-tailed deer (*Odocoileus virginianus*), raccoons (*Procyon lotor*), and opossum (*Didelphis virginiana*). Several large mammals that were important to prehistoric subsistence patterns that have been subsequently hunted into local extinction include elk or wapiti (*Cervus elaphus*), bison (a possible Late Prehistoric species), cougar (*Felis concolor*), black bear (*Ursus americanus*), and wolves (*Canis* sp.).

3.5 Prehistoric and Historic-Era Climate

Knowledge of past climate is based predominantly 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 penetrated well into 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 B.P. a warming/drying trend occurred, which is often referred to as the "Hypsithermal" or "Altithermal." This trend profoundly affected vegetation patterns until 4000 B.P. Modern floral patterns were in place sometime after 4000 B.P. by the end of the Hypsithermal period. Warm air masses from the Gulf of Mexico influenced the vegetation and climatic 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 B.P. to 50 B.P. or ca. A.D. 1600 to A.D. 1900. 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 (Henderson 1998).

3.6 Modern Climate

The *Soil Survey of Trumbull County, Ohio* (USDA 1992) states that the county is cold in winter and quite hot in summer. Winter precipitation, frequently snow, results in a good accumulation of soil moisture by spring and minimizes drought during summer on most soils. The normal annual precipitation is adequate for all of the crops that are adapted to the temperature and growing season in the county. In winter, the average temperature is 27 degrees Fahrenheit, and the average daily minimum temperature is 19 degrees Fahrenheit. The average temperature during the summer is 69 degrees Fahrenheit and the average daily maximum temperature is 80 degrees Fahrenheit (USDA 1992). As of the *Soil Survey of Trumbull County, Ohio* (USDA 1992) publication, the lowest temperature on record was -20 degrees Fahrenheit in 1985, while the highest recorded temperature was 100 degrees Fahrenheit in 1954.

Approximately 21 inches of the total annual precipitation, or more than 55 percent, usually fall in April through September (USDA 1992). The growing season for most crops falls within this period. The average seasonal snowfall is nearly 58 inches, with the greatest snow depth at any one time during the period of record was 18 inches. On average, 38 days of the year have at least one inch of snow on the ground, but that number varies

greatly from year to year. Tornadoes and severe thunderstorms occur occasionally, typically local in extent and of short duration (USDA 1992).

4. Cultural Overview

The following discussion is a synthesis of various sources regarding the known prehistoric and early historic cultures of northern Ohio and the vicinity of the Project. The compilation and analysis of the pertinent regional data, both archaeological and archival, can provide an intellectual framework for the assessment and synthesis of identified cultural resources within the Project, especially through the development of cogent research questions that can be applied to each of the identified resources. In that framework, the choice of specific dates for dividing one cultural period from another is somewhat arbitrary, since continuity of occupation for most areas in the eastern United States is well-documented (Broyles 1971; Michels and Smith 1967). In addition, regional variations can make such dates approximations at best. For ease of communication, however, it is convenient to use an accepted, standardized timeline that is based on significant distinctions among artifact assemblages. Additionally, this pertinent regional information can provide a framework for addressing the problem of site significance, as well as suggest certain research questions concerning the area's cultural resources.

4.1 Paleoindian Occupation (10,000-7,500 B.C.)

Some researchers believe that the Americas were populated before the more accepted Paleoindian occupation. In the northeastern United States, the earliest date for cultural material is found at the Meadowcroft Rockshelter in western Pennsylvania, with ^{14}C dates (SI-2345) between 14,275 B.C. and 11,350 B.C. (Adovasio et al. 1990). At Meadowcroft, a Miller lanceolate projectile point that dated to 10,050 B.C. was recovered, and below this projectile point were firepits dating to 13,050 B.C. Within these levels, artifacts recovered included bone, wood, basketry, shell, and cordage (Adovasio and Page 2002). Stone tools and debitage manufactured from high-quality raw material also were identified, such as rhomboidal knives, unifacial choppers and scrapers, sharp-pointed knives, microengravers, and small blades (Adovasio and Page 2002). Meadowcroft Rockshelter, is one of the few "Pre-Clovis" sites identified in North and South America.

The Paleoindian cultural tradition is recognized as part of a widespread, homogenous, conservative New World culture typified by a distinctive lithic artifact assemblage. The most visible and diagnostic item in this assemblage is the fluted projectile point. Other artifact types, which remain consistent from the Holcombe Beach site in Michigan (Fitting et al. 1966) to the Debert site in Nova Scotia (MacDonald 1968), represent predominantly hunting, butchering, and hide-working activities. The lack of non-lithic artifacts in Paleoindian assemblages can most likely be attributed to conditions unfavorable for their preservation, although it is assumed that bone tools and ornaments were utilized. For example, a culturally modified mastodon (*Mammut americanum*) rib was recovered at the Hiscock site in western New York. This artifact has been radiocarbon dated between 8940 B.C. and 9140 B.C. (Laub et al. 1996).

Paleoindian sites are reported from the American Southwest to Nova Scotia, with very little interregional variation in material culture. Because sites from this period reflect areas where small groups of people performed specific tasks for a short time, they maintain low archaeological profiles. Most information about this earliest cultural development must

therefore be inferred from sparse surface recoveries of artifacts and considered in conjunction with relevant paleoecological and geomorphological data.

Based on the available information, post-Pleistocene subsistence strategies must have been geared for coping with a harsh and rapidly changing environment. Evidence suggests that open grazing lands and boreal forests along the glacier's margins were exploited for woodland musk ox, mastodon, barren ground caribou (*Rangifer tarandus*), woolly mammoth, giant beaver, and stag-moose (*Cervalces scotti*) (Cleland 1966; Prufer and Baby 1963; Ritchie and Funk 1973). In western New York, remains of the American mastodon, caribou, stag-moose, and California condor (*Gymnogyps californianus*) have been recovered at the earlier Paleoindian period Hiscock site (Laub et al. 1996).

In the Midwest and Northeast, 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 that 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 the sources of good quality cherts, and 3) Paleoindian fluted points are rarely found in swampy bottomlands or rugged highlands such as the unglaciated portions of southeastern Ohio.

Around 9000 B.C., climatic moderation gradually altered the glacial-boreal ecosystem in the Midwest. The warming climate and eventually drier conditions initiated an increase of deciduous forest elements that by 5,000 B.C. had become established as the dominant forest type (Cleland 1966). Cyclical plants developed and smaller animals filled the opening faunal ecological niches. These climatic changes forced changes in human behavior. The emergence of more specialized ecological adaptations marks the end of the Paleoindian period, and the beginning of the Archaic. This change was not abrupt in the region but a gradation, reflecting cultural changes reflecting the progression of environmental modifications.

The archival review conducted for this Project did not identify any Paleoindian sites near the proposed Project boundaries.

4.2 Archaic Period (8,000-900 B.C.)

4.2.1 Early Archaic

While the later period of the Archaic in Ohio is well-documented, the prehistoric landscapes present during the earliest 3,000 years of Archaic activity have been significantly less documented. Purtill (2009) suggests that while early contexts for prehistory in Ohio identify a largely empty Early and Middle Archaic landscape, archaeological research has helped illuminate these temporal periods, especially in north and central regions of the state. As of December 2004, absolute dates of occupation had been established for five Early Archaic occupations (Purtill 2009), none of which occur near the Project. Purtill (2009) identifies 2,890 site locations that contain material diagnostic to the Early Archaic, almost all of which occur across the Till and Lake Plain regions of Ohio.

During the Early Archaic period, circa 8,000-6,000 B.C., the expanding deciduous forests produced a more favorable habitat for game species, particularly the white-tailed deer (Cleland 1966). 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; Jennings 1978). Small, mobile groups gradually became more geographically restricted as seasonally-oriented hunting and gathering activities were focused on smaller, more well exploited territories (Potter 1978). A narrow, yet nutritious spectrum of plant foods seems to have been utilized, with deer hunting being the major known subsistence activity (Chapman 1975; Cleland 1966). In the region, Early Archaic occupational preference appears to have centered on the uplands, typically near the confluence of two or more streams. The sites tend to be small, not reflective of base camps or lengthy occupations. The lithic raw material used during the Early Archaic generally is more focused on local lithic materials than during the Paleoindian period, likely reflecting decreased occupational mobility during the Early Archaic. The use of blade forms common during the Paleoindian period ended abruptly towards the beginning of the Early Archaic period (Adovasio et al. 1998).

Purtill's recent (2009) re-analysis of the Early Archaic period in Ohio updated a relative timeline for Ohio, within which five Early Archaic contexts have produced absolute date ranges. The theoretical framework updated by Purtill establishes an occupational range for the Early Archaic in Ohio extending from approximately 9,000 B.C. through 6,500 B.C., manifest archaeologically, in chronological order, through the presence of "hafted-biface horizons" including Early Side Notched, Charleston, Thebes, Kirk/Palmer, Kirk Stemmed, Large Bifurcate and Small Bifurcate. Purtill notes that Early Archaic lithic assemblages often contain unifacial and bifacial tools in context with diagnostic projectile point/knife (PPK) specimens.

At least three distinct areas of specific lithic resource utilization have been defined for the Early Archaic in Ohio. In the northern half of the state, across the Lake and Till Plains and Glaciated Plateau, an Upper Mercer chert industry has been documented across a wide swath of sites in the region. Bowen (1994) defines an Upper Mercer "lithic supply zone" for northern Ohio, as identified through the presence of over 90 percent of Large Bifurcate Upper Mercer tools from archaeological deposits across the region. Several researchers (notably Stothers 1996 and Bowen 1991) have identified a second supply zone focused on exploiting natural outcrops of Pipe Creek chert in northern Ohio, which extends around the shores of Lake Erie as far north as southern Ontario. A third zone has been defined in the southwestern corner of the state, centered around the Miami River watersheds, which displays chert bifaces fashioned from Harrison County chert (Bowen 1994, Litfin 1993). Purtill (2009) postulates a possible fourth supply zone present within the southern limits of the state, along the Ohio River watershed, dominated by the exploitation of Paoli chert from outcrops across the river on the uplands of northern Kentucky. Interestingly, Purtill indicates that the latter stages of the Early Archaic in Ohio contain evidence of increased abandonment from these primary chert resource zones, towards the exploitation of smaller, localized outcrops of raw material, correspondent with a shift away from the Large Bifurcate-biface tradition to the Small Bifurcate-horizon biface trends that extend into the Middle Archaic (Purtill 2009).

The examination of the Archival Study Area conducted as part of this Phase I survey did not identify any Early Archaic sites within 1.6 kilometers (one mile) of the proposed Project.

4.2.2 Middle Archaic

During the Middle Archaic period, circa 6000-3000 B.C., 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). Specialization in certain activities generated a more complex social structure within the band network as evidenced by what Griffin (1978) 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 (Fitzhugh 1972; Justice 1987). 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; Griffin 1978), 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.

In parts of the Central Ohio Valley, 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).

Purtill's 2009 analysis of the Ohio Archaic identified 452 Middle Archaic sites inventoried with the OHPO as of 2004, a significantly lower number than the 2890 Early Archaic and 3661 Late Archaic inventoried occupations. The steep decline in site frequency across the glaciated portions of the state appears to begin in the latter stages of the Early Archaic, as the trend away from the large zones of raw material exploitation towards localized chert-resource extraction coincides with the abandonment of the large hafted biface toolkit to smaller PPK and tool types. Purtill (2009) postulates that these are the archaeological manifestations of rapid population decline across the region, which would rebound dramatically into the subsequent Late Archaic period.

The archival review did not identify any Middle Archaic sites within 1.6 kilometers (one mile) of the Project area.

4.2.3 Late Archaic

In the Late Archaic period, circa 3000-900 B.C., the expansion of deciduous forest reached its most northern limit around 2000 B.C., and the climate was warmer than present day (Cleland 1966). A wider array of specialized objects was utilized 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). 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).

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 temporal period. In Missouri and Kentucky, they occur as early as 2,300 B.C. (Chomko and Crawford 1978). At Salts Cave, chenopodium (*Chenopodium* spp.), sunflower (*Helianthus annuus*), and yellow flowered gourd squash seed (*Cucurbita pepo*) were reported, dating approximately to 1500 B.C. (Yarnell 1973). Sumpweed (*Iva annua*), sunflower, chenopodium, and maygrass (*Phalaris caroliniana*) remains were recovered from human paleofeces dating from 1,150 B.C. at Hooton Hollow, a rockshelter in eastern Kentucky (Gremillion 1996).

According to the archival review, there were no Late Archaic resources identified in close proximity to the Project area.

4.3 Woodland Occupation (900 B.C. to A.D. 1000)

4.3.1 Early Woodland

The Early Woodland period, circa 900-100 B.C., appears to represent a cultural expansion of the Late Archaic, and is characterized by 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, in fact, extant throughout the Archaic, and persisted into the Early Woodland (Webb 1947; Griffin 1968). Evidence that the Early Woodland diet was supplemented by domestication of various native and non-native cultigens like sunflower and chenopodium (Struever and Vickery 1973), should be amended to note the earlier use of these cultivated garden crops in the Archaic (Yarnell 1973). Investigations at Meadowcroft Rockshelter (36WH297) in southwestern Pennsylvania demonstrate that non-native squash (*Cucurbita* sp.) and later maize (*Zea mays*) were introduced into the region during the Early Woodland period (Adovasio et al. 2003).

In Ohio, the local Early Woodland expression was the Adena culture, noted for the use of pottery and the use of constructed conical mounds for interment (Chapman and Otto 1976). Ritualized status, rank burials, and construction of burial mounds probably had their origins in previous Late Archaic ceremonial complexes. Similar to the Late Archaic, the Adena were a semi-sedentary people; however, they were more territorially restrictive, which was in part evidenced through the occurrence of semi-permanent village sites and the first manufacture of pottery (Chapman and Otto 1976). Several types of ceramics are commonly associated with the Adena: Fayette Thick, Adena plain, and Montgomery

incised. However, Fayette Thick ceramics recovered at the West Runway site (15Be391), located at the Greater Cincinnati/Northern Kentucky International Airport in Boone County, Kentucky, dated to 640 B.C. (Duerksen et al. 1995), which predates the generally accepted timeframe for Adena. Rather than being associated with Adena, therefore, Fayette Thick ceramics are contemporary to the Marion Thick wares from Indiana and are associated with the pre-Adena Early Woodland in the Central Ohio Valley. These investigations have resulted in researchers in Kentucky considering the Adena a Middle Woodland phenomenon (Railey 1990; Duerksen et al. 1995).

Finely manufactured leaf-shaped blades and a variety of stemmed projectile points such as Cresap, Robbins, and Adena were manufactured (Chapman and Otto 1976). Copper was used to fashion ornaments such as beads, bracelets, rings, gorgets, and reels (Potter 1978). Other typical artifacts included tubular pipes, quadraconcave gorgets, pendants of banded slate materials, full grooved axes, hematite celts, and incised stone tablets (Chapman and Otto 1976).

The archival review conducted for this Project identified one unassigned Woodland resource, 33Tr0096, within 1.6 kilometers (one mile) of the proposed Project. According to the site form, one corner-notched projectile point, flint debitage, and block shatter was recovered from this resource. The presence of this site suggests a slight increase in the probability for general Woodland resources in proximity to the Project; however, given the small sample, the probability for encountering Early Woodland sites is still somewhat low.

4.3.2 Middle Woodland

The Middle Woodland period, circa 100 B.C. - A.D. 500, represents a period of complex sociocultural integration across regional boundaries via networks of trade. This concept has been described as the Hopewell Interaction Sphere by Caldwell (1964) and Struever (1964). The designation “Hopewell” has been applied to a particular archaeological assemblage that has been found from western New York to western Missouri and from the Gulf of Mexico to Lake Huron. Mayer-Oakes (1955) and Griffin (1978) 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. Both are regarded as Hopewell, but the Ohio focus, a culmination of Late Archaic and Early Woodland trends, is more elaborate in terms of stylistic traits, mortuary ceremonialism, and complexity of earthworks.

Hopewell is characterized by elaborate geometric earthworks, enclosures, and mounds that are often associated with multiple burials and a wide array of exotic ceremonial goods. Ceremonially, the Hopewell appears to represent a continuation of the Adena, but on a more expanded and elaborate scale (Dragoo 1962). Hopewellian trade networks 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 1964). Some of the ceremonial artifacts that were produced include obsidian knives and blades; stone platform pipes with human and animal effigies; copper breastplates, ear spools, and celts; mica zoomorphic and geometric shapes; and highly decorated ceramic vessels (Jennings 1978). Lithic types attributed to the Hopewell are Snyders points, Hopewell leaf-shaped blades, small side-notched points without basal

grinding, prismatic bladelets and associated polyhedral cores, and flake knives, most of which were manufactured from high grade chert, another important trade commodity (Chapman and Otto 1976; Mayer-Oakes 1955).

Middle Woodland subsistence was based on hunting and collecting, and small-scale agriculture, probably more accurately described as horticulture. Wymer (1997) has posited that 60 to nearly 90 percent of seeds recovered from Ohio Hopewell sites are components of the Eastern Agricultural Complex - maygrass, erect knotweed (*Polygonum erectum*), and chenopodium. 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 cinerea*), acorn (*Quercus* spp.), and hazelnut (*Corylus americanus*). Horticultural and plant gathering activities provided for the majority of the Middle Woodland diet, but were complimented by hunting, fishing, and gathering focused on the white-tailed deer. Other notable animal species taken include black bear, elk or wapiti, beaver (*Castor canadensis*), various fish species, and mussels (Griffin 1968). Maize continued to be cultivated during the Middle Woodland period (Adovasio et al. 2003).

Settlement patterns in the Middle Woodland have been described as a series of vacant ceremonial centers surrounded by outlying, inhabited farming villages (Prufer 1964). This "Vacant Center - Dispersed Agricultural Hamlet," model is based on the Mesoamerican Vacant Ceremonial Center-Dispersed Agricultural Hamlet pattern, wherein the ceremonial center is the focus of settlement, but is, itself, not a center of domestic activity (Dancey and Pacheco 1997). This model has been updated by Dancey and Pacheco (1997), and referred to as the "Dispersed Sedentary Community Model." The model is still 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, hunting, and collecting. Other components of the settlement pattern include: "outlying camps, public works, and symbolic places" (Dancey and Pacheco 1997). The hamlets belong to a "ritual precinct," a ceremonial center of burial mounds and earthworks that provide a focus for ceremonial activities and, possibly, trade and interaction with groups of other "ritual precincts."

The ebb of the Middle Woodland cultural florescence marked the beginning of the Late Woodland period, circa A.D. 500–1000. From 100 B.C. to A.D. 500, the Scioto Hopewell had reached a cultural apex (Shane and Murphy 1967). Around the sixth century A.D., a decline and realignment took place, the exact causes of which are unknown. Much speculation has been put forth on the causes of this change. Cleland (1966) 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.

No Middle Woodland resources were inventoried with the OAI within 1.6 kilometers (one mile) of the proposed Project.

4.3.3 Late Woodland

Regardless of the reasons, it is evident that by A.D. 700, major changes in subsistence and settlement were occurring, and that there was more diversity in occupation patterns. Ceremonial centers were abandoned; trade networks dissipated, and less emphasis was placed on burial ceremonialism.

The advent of the Late Woodland period in northern Ohio is characterized by seasonal camps, scattered along the lake shore and heights-of-land overlooking permanent drainages. Brose (2000:99) outlines a chronological sequence for the Late Woodland in northwest Ohio beginning with the Riviere au Vase phase (AD 850-950), developing from westward-migrating Point Pleasant traditions, followed by the Younge and Wolf phases up to approximately 1400 A.D., at which point the Late Prehistoric Sandusky tradition fortified villages. Ceramic variation represents one of the primary indicators of the gradual transition between the Riviere au Vase and Younge phase occupations, with indications that both cultures were influenced by peripheral Fort Ancient societies of north-central Ohio (Brose 2000).

Much of the characterization of the central and southern Ohio Late Woodland has been based on ceramic assemblages (Murphy 1975). Several different pottery types, distinguished by their primary tempering technique, are used to define these assemblages (Murphy 1975). Southern Ohio ceramic ware is characterized by the Peters series, which is primarily cordmarked and tempered with chert, and the Chesser series, which is cordmarked and tempered with limestone (Prufer 1964; Prufer and McKenzie 1966). Lithic assemblages are represented by triangular projectile points such as Madison and Levanna, as well as Raccoon Notched, Jack's Reef, Backstrum Side Notched, and Chesser Notched points (Nass and Hart 2000; Justice 1987).

An increase in population would have put stress on resources. 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 northeastern 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.

One Late Woodland resource, 33Tr0097, was identified within one mile of the Project area. This site includes a possible intrusive mound, a projectile point, flakes, and block shatter.

4.4 Late Prehistoric Occupation (A.D. 1000-1600)

The Late Prehistory of northern portion of Ohio falls within the Sandusky Tradition, which appears towards the end of the Late Woodland and continues through to what has been viewed as the displacement period, coincident with the increased European footprint across the Great Lakes during the seventeenth century. The Fort Ancient-influenced Fort Meigs phase, which developed in the Maumee River valley between 1450 A.D. and 1550 A.D., saw the concentration of populations into several large, palisaded villages, based on a highly agricultural diet with evidence of fishing and hunting (Brose 2000:104). The Fort

Meigs and subsequent Indian Hills Late Prehistoric phase ceramic styles spread across the southern margins of Lake Erie throughout this period, replacing Wolf Phase sites around 1500 A.D. Sites within the Sandusky Bay region from this period appear to have been fortified, and larger in size than previous occupations during the Late Woodland (Brose 2000:105).

Artifacts associated with Sandusky Tradition sites include shell-tempered pottery that can be cord-marked, punctated, or plain, triangular projectile points, pottery elbow pipes, celts, cannel coal pendants, perforated canine teeth, discoidals, and bone tools. Burials were also within the village but with no associated grave goods. Similar to Fort Ancient peoples to the south, the Fort Meigs and Indian Hills occupations focused on maize agriculture supplemented with hunting and fishing. Deer, turkey, elk, mussels, and fish were all part of the subsistence base (Converse 2003).

The Fort Ancient culture appeared in southern Ohio sometime around A.D. 960 - A.D. 1000, its emergence from a Late Woodland base was stimulated by an increasing reliance on maize agriculture, an increase in sedentism, and the influx of southern Mississippian influences (Brose et al 1978; Essenpreis 1978). The stylistic diffusion of ceramic attributes such as thick strap handles, incised guilloche designs, and the use of shell-tempering were probably the earliest Mississippian influences to enter the Ohio Valley (Brose et al 1978). New architectural styles, new crops (beans), and Mississippian ceremonialism were also introduced after this time (Brose et al 1978: 71).

By A.D. 1650 to A.D. 1700, European trade goods begin appearing in artifact collections from northern Ohio sites. These trade goods included glass beads, brass kettles, iron objects, and tinklers or janglers. These objects probably were the result of indirect trade by Indian traders with European settlers/ traders. Brose (2000) identifies four distinct Late Prehistoric groups across northern Ohio, with the Indian Hills-influenced Sandusky Tradition present in northwestern Ohio during this period. Early French documents on the native cultures of the Great Lakes possibly identified Indian Hills Tradition sites within northwest Ohio in the 1650s, and subsequently place this population in southern Michigan by the 1670s, and as far west as Wisconsin by the 1680s (Brose 2000: 110). Popular archaeological theory (especially Brose 2000, Stothers et al. 1994) suggests that the Late Prehistoric societies of northwestern Ohio were displaced entirely by larger migrating native societies from the east, themselves forced west by the effects of the European presence. A counter-argument suggests a more gradual shift of populations across the region. What can be observed is that, during the 1600s, migrant populations from the east appear across the Great Lakes, and French records from the 1650s indicate that the southern shore of Lake Erie was unoccupied, due to stresses of Iroquois encroachment across the region (Brose 2000 : 110-111).

4.5 Historic Period Ohio

Before the latter part of the seventeenth century, several Native American tribes were living in the region of present-day Ohio. These included the Mosopelea 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). Two other groups that were displaced, the Shawnee and Delaware, also settled in Ohio. The Shawnee have their origins in southern Ohio. Their conquest by the Iroquois in 1672 “brought them into association with a variety

of different tribes," like the Delaware and Creek tribes (Callender 1978). They settled with the Delaware in eastern Pennsylvania. Later, both groups moved into the Ohio Valley, arriving in western Pennsylvania and central Ohio between 1720 and 1745. Shawnee villages were typically semi-permanent settlements composed of bark-covered lodges, sweathouses, and communal structures used for ritual and secular celebrations (Clark 1974). 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).

Lower Shawnee Town was settled at the mouth of the Licking River in 1739. A large flood in 1758 prompted many of the Shawnee 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 Chillicothee" on the Little Miami, about three miles north of Xenia. A town was also established 12 miles north on the Mad River at Piqua. Both Old Chillicothe and Piqua were destroyed in 1780 by an expedition led by George Rogers Clark. The Shawnee then retired to the fifth Chillicothe on the Great Miami River (Clark 1974).

In 1794, General Anthony Wayne defeated the Shawnee at the Battle of Fallen Timbers, south of modern-day Toledo. Most of the Shawnee agreed to the Treaty of Greenville at which they ceded all lands south of the Ohio River and most of Ohio and southern Indiana to the United States. A few 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 U.S. Government and all the Shawnee were removed to west of the Mississippi River.

The Treaty of Greenville formally marked the beginning of permanent Euro-American inhabitancy 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). The Project areas lie several miles north of the Seven Ranges, which was established and surveyed during the first decade of the nineteenth century with Euro-American settlement in the area starting somewhat earlier.

The Northwest Territory ceased to exist when Ohio gained statehood in 1803. However, several territorial counties remained in existence and were later broken up to form other Ohio counties. Washington County was the first of the Territorial Counties formed in 1788 by territorial governor St. Clair, including the Project areas in Noble County, which was subsequently formed from portions of Guernsey, Monroe, Morgan, and Washington Counties.

While the early 1800s 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. Into the mid-nineteenth century, most farms were located on bottomlands and terraces along larger waterways. As farms

increased the number of cultivated acres, deforestation led to surplus lumber and surplus foodstuffs. However, only in areas with adequate streams for transportation did sawmills for commercial production appear. Milling developed in conjunction with agricultural production (Buck and Buck 1939). Local roads were improved and extended to make wagon traffic more practical in the early 1800s.

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 also were constructed to transport people, livestock, and goods. The canal building in Ohio began in 1825, with the first section of the Ohio & Erie Canal opened in 1827. The prominent canal systems developed in Ohio were the Ohio & Erie Canal and the Miami & Erie Canal. The mainlines of these two systems extended a combined 900 kilometers (559 miles). Many feeder canals were developed that connected these main canals to various cities and to navigable waterways such as the Ohio River. These canals, while some were fraught with construction and maintenance problems, substantially improved the transportation of commodities within Ohio and with areas in many other states. The pronounced commercial enhancements of the canal systems to Ohio extended from 1827 into the early 1850s. In the 1850s, the canal systems substantially declined and ultimately failed because their operations were both parochial and seasonal, and because the capacity of their technology was outstripped by that of the developing railway transport. Portions of the canal system remained in decreasing use until 1913, when a massive widespread flood in Ohio ended commercial use of the remaining canals (Gieck 1992).

4.5.1 History of Trumbull County

Trumbull County, the county seat, located in Warren, Ohio, consists of a combination of both urban and rural communities situated in the northeast corner of Ohio (Trumbull County 2021). It is located roughly between the Youngstown, Cleveland, and Akron corridors. Trumbull County was part of the Western Reserve of Connecticut, owned by the Connecticut Land Company in 1795 (Ohio History Central 2021a). The county was established on July 10, 1800, serving as the seventh county in the Northwest Territory, and is named after Jonathan Trumbull, Governor of Connecticut, who once owned the land in this region (Trumbull County 2021).

According to the U.S. Census, the population of Trumbull County in 1800 was 1,302 (familypedia 2021). The number of residents within the county steadily grew throughout the early 1800s, reaching 38,107 by 1840. A sharp decline was reported in 1850, with the total number of residents dropping to 30,490. The population saw an ebb and flow throughout the latter half of the nineteenth century, reaching 46,591 in 1900. A fairly significant boom occurred between 1910 and 1930, as the population grew from 52,766 in 1910 to 123,063 in 1930. The number of citizens in Trumbull County continued to grow throughout the early to mid-1900s, from 132,315 in 1940 to 241,863 in 1980. However, the modern age has seen a relatively small decline in population, from 227,814 in 1990 to 210,312 in 2010 (familypedia 2021).

United States President William McKinley, Jr., was born in the Trumbull County village of Niles (Ohio History Central 2021b). Trumbull County was also the birthplace of Clarence Darrow, a prominent American attorney during the twentieth century. In the famous trial of John T. Scopes at Dayton Tennessee, Darrow defended a high-school teacher who had broken a state law by presenting the Darwinian theory of evolution (britannica.com 2021).

Trumbull County is overwhelmingly rural, with only four percent of the county's land area classified as urban (Ohio History Central 2021b). Most residents work in manufacturing, sales, or service positions. Farming ranks a distant fifth. Historically, steel production was a major industry in the county because of the large deposits of coal and iron ore in surrounding counties (Ohio History Central 2021). According to Data USA, Trumbull County had a population of 202,000 people with a median age of 44.2 and a median household income of $45,975 in 2018 (Data USA 2021). The largest universities in the county are Kent State University at Trumbull, Ross Medical Education Center-Niles, and ETI Technical College.

5. Field and Analytical Methods

In the conduct of the Phase I survey detailed herein, AECOM followed the guidelines established for survey work in Ohio, as detailed in *Archaeological Guidelines* (OHPO 1994). The following section details these methodologies, as applied to the collection and processing of data from the AECOM Phase I survey. The primary analytical methodology utilized for the Project can be found in the Research Design (**Chapter 2.0**) prepared by AECOM prior to the initiation of fieldwork.

5.1 Archaeological Field Methods

Prior to entering the field, digital mapping files were prepared based on geo-referenced boundaries of the direct APE of the Project. AECOM utilized the standard Phase I archaeological field methods as outlined in the OHPO (1994) *Archaeology Guidelines,* to survey the entire direct APE through pedestrian survey and shovel test excavations on a 15-meter (49-foot) interval, dependent on field conditions at the particular areas.

Using the digital mapping files, the direct APE was overlain by a GIS-created transect grid of sample loci (SL), spaced at the standard 15-meter (49-foot) testing interval as recommended by the OHPO. Each SL represents a point from which data regarding topography, ground surface conditions, and soil descriptions are recorded, and a sample of the landscape is examined for cultural materials. The particular testing method used for an individual SL is determined by the character of the topography and ground surface observed at each locality. Areas with slope greater than 15 degrees, disturbance areas, and designated wetlands were investigated through pedestrian survey, but were not shovel tested unless the characteristics of a location warranted it. Systematic shovel testing consisted of minimally a 57-centimeter-diameter hole excavated to 50 centimeters below the surface, or until a rock impasse or sterile soil was encountered. When cultural materials were recovered from shovel tests, intra-site radial shovel tests typically were excavated at 5-meter (15-foot) and 10-meter (30-foot) intervals to delineate the archaeological sites.

All soil removed from each shovel test was screened through 6.35-millimeter (¼-inch) mesh hardware cloth to recover relatively small artifacts. The focus of shovel testing was to determine if these locations contained any artifacts, features, or buried soils, and to access soil stratigraphy, congruent with the 1994 OHPO guidelines (OHPO 1994:60-64). All artifacts recovered from the shovel tests were retained for analysis. In areas with standing water, visual pedestrian survey was used regardless of the degree of surface visibility, although scrutiny of the ground surface was maintained in order to identify above-ground cultural resources.

The spatial location of all areas within the survey unit containing archaeological materials was recorded on a Trimble GPS unit with sub-meter accuracy. Isolated findspots (locations where a single or a group of cultural materials was identified) were recorded as a single point in the GPS data. In conjunction with the spatial data collection for each artifact or group, cultural materials were collected, assigned a shovel test or surface find number, bagged in sample bags, and documented. Locations of SL, as well as all identified cultural resources, were recorded with the sub-meter-accurate GPS equipment. The data collected in this way forms the basis of the mapping by which the survey is

presented in this report. During fieldwork, a series of photographs were taken to characterize the physical setting of workspaces and access roads, including attributes such as steep slopes and modern disturbance; these photographs can be found in **Appendix B** to this volume.

5.2 Laboratory and Curatorial Methods

AECOM laboratory staff cleaned, sorted, and cataloged cultural materials recovered during the investigation. Following initial processing, materials were classified in increasingly specific terms: material type, morphological attributes, and when possible specific types.

All of the located non-modern historic artifacts that were recovered were assigned to resource designations and delivered to the AECOM laboratory for processing and analysis. Laboratory staff processed all recovered artifacts per TDOA standards and guidelines. Upon receipt from the field, the laboratory supervisor reviewed artifacts against the respective field paperwork to ensure the presence of all recovered artifacts and to verify provenience data. The field excavations did not yield any perishable artifacts requiring specialized curatorial treatment. Laboratory staff then entered pertinent field data into a Microsoft Excel database. Technicians washed all non-friable artifacts in water, using a brush to remove dirt and debris. Artifacts were then packaged into clean polyethylene bags by material type within each field sample (FS) number and sent to its respective analysts. Analysts entered analyses by FS number into class-based inventories within the Microsoft Excel database.

Historic artifacts, in general, were assessed for their material type, function, and diagnostic attributes. Glass typologies were based on function, closure type (on available rims), method of manufacture, color, and surface treatment/decoration. Ceramic sherds were categorized by paste, glaze, vessel form, and surface decoration. Where applicable, date ranges and references for these diagnostic attributes (e.g., form, style, and decoration) were recorded.

5.2.1 Prehistoric Artifact Analysis

The Phase I prehistoric lithic assemblage was analyzed utilizing a methodology focused on the concept of *chaine opératoire* (Geneste and Plisson 1986; Sellet 1993; Bar Yosef and Van Peer 2009). This approach attempts to place lithic artifacts within a reduction sequence from raw material to finished product. The vast majority of lithic artifacts recovered were debitage, the waste product from reducing raw material into tools. The stage of reduction from which a piece of debitage was produced can be broadly identified. This method results in a deeper understanding of the specific activities that occurred at a site and may provide insight into the larger picture of human occupation of a location.

Terminology

- **Blank**: When a flake is detached from a block of raw material it may be regarded as waste, utilized without modification, or used as a blank to be retouched into a tool.
- **Chip**: This term, introduced by Newcomer and Karlin (1987), describes tiny flakes (<1 centimeter in length) which area detached during several different types of manufacturing trajectories. 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 endscrapers.

- **Core**: A core is a block of raw material 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.
- **Debitage**: The French term debitage has two related meanings: 1) it refers to the act of intentionally flaking a block of raw material to obtain its products, and 2) it refers to those products themselves. Commonly, the term debitage is used by prehistorians to describe pieces that have been removed from a core that have not been modified by secondary retouch and made into tools.
- **Flake**: A flake is a product of debitage that has a length/width ration of 1:1 (de Sonneville-Bordes 1960). Flakes fall into different categories based on the end-goal of the reduction sequence (e.g. biface reduction) or based on the technological attributes of flake production (e.g. platform abrasion). Some flakes do not have any features that allow for the identification of a specific reduction sequence. For example, flakes removed at the initial stage of both biface and core reduction to remove the exterior cortex of the raw material look similar despite their different outcomes.

Flakes from the biface reduction sequence include:

- *Biface Initial Reduction Flakes 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.*
- *Thinning/shaping flakes* 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.
- *Finishing or trimming flakes* 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.

Other flake types and/or attributes 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 percussor 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 either be produced 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 volume, 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.

- **Biface**: A biface is any retouched tool, partially completed or finished, which has been flaked by percussion or pressure flaking on both of its faces.
- **Retouch**: This term is taken from the French 'retouchee' and 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 projectile point or small, tiny flakes on the edge of an end-scraper. 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.
- **Retouched flake or piece**: 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.
- **Tool**: For the purposes of typological description only, a tool is any flake that has been shaped and modified by secondary retouch. In the case of biface manufacture, a block of raw material may be transformed directly by retouch into a tool such as a knife or projectile point. The term tool, therefore, is used only for descriptive purposes to separate those artifacts which have been retouched from the debitage or unretouched pieces. Finally, it should be recognized that the latter group of objects may well have functioned as tools, for example unretouched flakes with good cutting edges are effective for skinning and butchery, but this is difficult to determine without a microwear analysis.

- **PPK (Projectile Point/Knife)**: This Class of artifact includes chipped stone bifaces exhibiting standardization in hafting and which were used as projectile points or knives. The terminology and nomenclature used to describe the single PPK specimen recovered during the Phase I archaeological field reconnaissance was derived from various classificatory typologies published by Ritchie (1961), Justice (1987), Fogelman (1988), Railey (1992), and Baker (1995).

Method of Lithic Analysis

The first level of analysis involves separating retouched tools, flakes, cores, and fragments (shatter and 'chunks' of raw material) and listing the presence or absence of features such as cortex. The tools are divided into subclasses including bifaces/preforms, projectile points, knives, scrapers, and miscellaneous tools. The flakes are then further subdivided, in as much as was possible, into groups that would more specifically identify the reduction sequence to which they belonged. The list below presents each of the major artifact categories with its subclasses.

1) Retouched tools
    A) Points
    B) Knives
    C) Bifaces/Preforms
        1. Early reduction (thick, cortical)
        2. Later reduction (thinned, finished)
    D) Flake Tools
    E) Miscellaneous Tools
2) Debitage
    A) Flakes
        1. Initial reduction - all reduction sequences
        2. Unspecific reduction - undetermined reduction sequence
        3. Biface initial reduction flakes
        4. Biface thinning flakes
        5. Biface finishing flakes - probably including edge sharpening
        6. 'Chips' - complete and between 5 millimeters and 1 centimeter in length
        7. Microdebitage <5 millimeter in length
        8. Janus Flakes

Current approaches to the analysis of lithic artifacts include a study of the systematic procedures utilized by prehistoric knappers to make tools. The term used to describe this process is referred to as chaine opératoire or reduction strategy. The production of any class of stone tools involves a process that must begin with the selection of suitable raw materials. The basic requirements of any raw material to be used to make flaked stone artifacts include the following: 1) that it can be easily worked into a desirable shape; and 2) that sharp, durable edges can be produced during flaking. Raw material selection involves a careful process of decision-making and includes consideration of the properties of specific materials, especially their ability to be easily flaked and hold an edge. For example, obsidian is ideal for producing cutting implements such as projectile points, but it is not as suitable for tasks involving heavy chopping.

Once a raw material is selected and an adequate source is located, the process of tool manufacture begins. Two different strategies can be utilized and these involve the reduction of a material block directly into a tool form, like a 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, 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 manufacture 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 manufacture include the following: 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 manufacture 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 similar to 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.

5.2.2 Historic Artifact Analysis

The historic artifact classification documented in this report is based first on the material and type descriptions, including distinguishable diagnostic attributes, and secondly on class designations. The material and type descriptions distinguish the artifacts by broad material types such as ceramic, glass, and metal artifacts, along with "miscellaneous" artifacts that include divergent categories of material such as bone, shell, plastic, Bakelite, vinyl, nylon, graphite, and rubber. When known, specific functions are documented, such as bottle, nail, bowl, dry cell battery rod, horseshoe, and brick. The descriptions are further refined with descriptions such as portion (e.g., rim, nail head, heel), manufacturing technique, forms of decoration, and available temporal information. This level of analysis is commensurate with artifact analytical methods commonly used elsewhere (e.g., Pittman 1987; Stelle 2001). The artifact tables are organized based on these analyses.

The class designations were differentiated by Sprague (1980). 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 nineteenth and twentieth 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. These classifications were integrated into the historic artifact analyses and referenced in text at useful locations. 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, atmospheric conditioning, and architectural safety.

The following sections provide definitions of the more common material types (e.g., ceramic, glassware, and metal) as well as their decorations, recovered in late eighteenth through mid-twentieth century contexts. These are the classes of historic artifacts most relevant to the Project.

5.2.2.1 Ceramics

The earthenwares are a broad category of ceramics fired at temperatures too low to vitrify the paste, but high enough to vitrify the glaze. Earthenware pastes are porous, absorbent, and relatively coarsely grained. Often various materials added to the paste as tempering agents are clearly visible. Earthenware-quality clays are readily available, relatively easy to work and inexpensive to fire. Earthenwares were generally utilitarian, although various decorative traditions were prized tablewares. Earthenware decorative types include, but are not limited to, tin glazed, iron glazed, mottled manganese, lead glazed, slipped, slip-trailed, and combed slip. Earthenwares are nearly ubiquitous on historic period sites; details of vessel form, manufacturing, and decorative technique are often diagnostic for specific ethnicities or periods. The so-called refined earthenwares of the late eighteenth through early nineteenth centuries reflect the popular demand for inexpensive imitations of porcelain. The following sub-categories of refined earthenwares are usually treated as distinct types with discrete production histories, but often prove nearly indistinguishable in the laboratory.

Creamware is early-refined earthenware, dating from ca. 1760 to 1820. Creamwares are generally thinly potted using mold-patterns. Creamware and the other 'refined' earthenwares were mass-produced for an international market.

Pearlware is a refined earthenware with a white paste, introduced after 1779 by Josiah Wedgwood. Pearlware has several improvements over creamware, including increased flint content; 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, particularly in areas where the glaze has 'puddled'. Pearlware reached a peak in popularity around 1810 but was largely superseded by whiteware by 1825.

Whiteware is refined earthenware with a white paste, clear glaze, and no tinting. Whiteware was developed as a direct successor to pearlware and became popular after ca. 1820. 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. It is typically dense, non-porous, and may be indistinguishable from whiteware. The peak of production for 'heavy bodied' dense ironstone wares was between 1840 and 1885, although variations on ironstone continue in production today.

The stonewares are characterized by a compact, fine-grained and non-porous, opaque body fired to higher temperatures (1300 degrees Fahrenheit [F]) than the earthenwares. Stonewares are manufactured from naturally vitrifying, dense clays that produce a fine-grained, homogenous texture with a hard body. Stonewares may be decorated with cobalt and manganese, Albany or Bristol slips, or salt glazing, with a variety of incised or applied surface decorations. Stonewares have a long history of use in utilitarian and tableware forms, although by the nineteenth century, stoneware was used predominantly for storage vessels.

The term "Yellowware" applies to a ceramic type constructed of clay that fires to a yellowish hue. Less dense than stoneware, yellowware is fired at 2200 degrees F to a very durable body suitable for use in baking. Yellowwares were intended to be low cost, mass-produced utilitarian ceramics. They generally date from 1850-1930.

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.

5.2.2.2 Ceramic Decorations

Most ceramics are decorated by glazing, whereby an applied solution that vitrifies at high temperature seals the porous paste of the vessel, while imparting a distinctive color according to the trace elements present in the glaze solution. Most historic glazes were based on lead flux until the 1820s when alkaline glazes were introduced in refined earthenware manufacturing. Hydrofluoric acid and ammonium sulfide solutions may be used to test the presence of lead in historic ceramic sherds (Deiss 1985). The following are some of the most common decorative types in historic ceramics:

Underglaze transfer print: The use of an underglaze transfer print to decorate ceramics was developed in the later part of the eighteenth century. The designs are typically quite

intricate and include floral motifs, as well as 'exotic' oriental scenes. The earlier transfer prints, starting in the 1780s, were blue with some in black. By the mid-1810s, a range of other colors were introduced such as brown, green, red, purple, and mulberry. Simultaneous printing in two or more colors was introduced about 1840 (Samford 1997:20-22).

Flow blue: Flow blue decoration was a variant of transfer printing where the design flows or blends with the glaze. The result of this effect is a fuzzy or blurred decoration that is 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 1830-1860, with a peak of production from 1850-1860.

Spongeware/Spatterware: The production of spongeware involved the application of a coloring agent with a modified sponge. The sponge was dipped in a color or variety of colors and used to produce blotches, whirls, or bands. Varying date ranges have been applied to this form of decoration, but 1840-1860 is the most commonly accepted. Spatterware is a variant of spongeware in which the color is 'spattered' over the surface of the vessel. It has a slightly longer date range than spongeware, extending from 1840-1880. Both decorative techniques remain in minimal production to the present day.

Handpainted underglaze: Handpainted decorations, usually floral motifs, were used on refined earthenwares including pearlware, whiteware, and ironstone. In the 1770s, floral motifs on pearlware typically were blue, although banding also occurred in brown and later green. Later vessels, starting ca. 1795, were increasingly polychrome with a wider variety of colors such as green, brown, yellow, black, red, blue, and pink (Miller 2000:12-13).

Annular: Banded decorations were commonly applied to whitewares and ironstone with the use of a quill. This type of decoration, referred to as 'annular', consists of horizontal or concentric bands of color applied to the slip. Annular whiteware has a median date of production of 1845.

Molded or embossed wares: Included in this group are the edge decorated pearlwares and whitewares such as the 'shell edge' or 'feather edge' types. These ceramic wares have a pattern molded to the edge that was then covered with a cobalt blue or forest green color. Blue and green shell edge wares have a date range of 1780s-1880s, with a median date of production in the 1830s (Miller 2000:3-4). Plain molded or embossed designs were used on whiteware and ironstone, especially in the middle part of the nineteenth century.

5.2.2.3 Glass

Like ceramics, bottle manufacturing technology has evolved over the years. Glass bottles were all hand blown or blown into molds prior to the 1800s, with the first American production of bottles occurring in the mid-1700s (Noël Hume 1969). However, the 1800s was a time of rapid advancement in bottle making technology, especially towards the end of the century. The glass making revolution of the nineteenth century resulted in numerous identifiable temporal markers. These manufacturing characteristics and their respective temporal ranges were identified for glass identification and temporal affiliation followed studies by Deiss (1979), Jones and Sullivan (1985), Ketchum (1975), Lorrain (1968),

Putnam (1965), and Toulouse (1969). Bottle glass in particular was analyzed according to Jones and Sullivan's (1985) classification, terminology, definitions, and chronology.

In 1821, the three piece or Ricketts mold was developed, which improved bottle making efficiency, although hand blown bottles continued to be produced throughout the 1800s (Jones and Sullivan 1985:30). The three piece mold would remain a common manufacturing technique until the 1890s (Newman 1970). Other bottle manufacturing techniques that were developed during the 1800s include the two piece mold (from 1845 to 1913), turn/paste mold (from 1870 to 1920), and the snap case (from 1855 to 1913) (Jones and Sullivan 1985; Newman 1970). The plate mold was developed in the 1840s with its use becoming widespread in the 1850s-1860s, allowing the lettering on the associated molds to be easily and fairly inexpensively modified, enabling localized companies to use bottles with lettering and design specific for those companies (Lindsey 2019).

The goal in producing bottles was to make them standard and uniform, but this was difficult, since many aspects of bottles (i.e. bottle finish or lip) continued to be made by hand, even after the three piece mold was developed. Bottle lipping technology also evolved over time. Early in the manufacture of bottes, the lips were formed by folding over the excess glass to form an edge, or a bottle lacked a lip, the result when the neck of the bottle was smoothed by fire polishing after being cut from the blow pipe. Applied lips are globs of glass that were added to the neck of a bottle to make a lip that is better for pouring and accommodating a stopper. Different types of applied lips were used from about 1840 to 1913 (Newman 1970). By 1875, improved lipping tools were used directly on the neck itself, bypassing the need to apply a glob of glass to form a lip. This improved tooled lip technique was common until 1903 (Deiss 1979).

The base of a bottle also went through an evolutionary process. For the most part, bottles could only be made with the aid of a pontil, a long iron rod that was attached to the molten glass to hold it in place for shaping. Once the bottle was finished, it would be removed from the pontil, leaving a mark of rough glass on the base (Jones and Sullivan 1985). This technique was used from the 1600s to 1879 (Newman 1970; Noël Hume 1969). In some cases, pontil marks were improved by grinding them down. This process, which left a smoothed base, dates from 1840 to 1880 (Newman 1970:73). In some cases, the base of the bottle was molded as part of the body in a process known as dip molding, where molten glass is dipped into a mold. This was a common practice in the 1800s and is still in use today. Some bottle bases were molded as a separate piece in plate bottom molding, which dates from 1821 to at least 1920 (Jones and Sullivan 1985:49).

Despite the technological innovations of the late 1800s, bottles were still not standardized or uniform. At this time, the demand for bottles increased, as packaged foods and drinks became popular. There was a need for new bottle making and sealing techniques. Several semi-automatic bottle making machines were introduced in the 1880s, but they still relied on some handmade aspects (Jones and Sullivan 1985). In 1903, Michael J. Owens developed the first fully automatic bottle making machine, which injected glass into a mold from the base and then cut the base, leaving what is referred to today as an "Owens scar." By the 1910s, this form of bottle making was predominant and was used until the 1940s to early 1950s, when machines were improved so they did not leave a scar (Fike 1987; Jones and Sullivan 1985:39; Kendrick 1964). During the same time period, other

bottle making machines left valve scars on the base that were formed from the use of a valve to inject glass into the molds.

The manufacture of glass jars was a direct result of, and benefited from, the technological advancements made in bottle production. The increased demand for better food packaging and food preservation created the popularity of home canning in the later 1800s. Although canning jars were developed in the early 1800s, it was not until the 1850s when tinsmith John Mason developed a metal screw cap for preserving jars, that canning jars became widely produced (Sives 1991). Using the new technologies for producing bottles, jar manufacture increased greatly by the end of the 1800s. By 1869, a lid liner typically made of milk glass was developed for Mason's metal screw caps, which greatly enhanced the preservation process (Toulouse 1969).

Other technological advances in making bottles involved new techniques for developing different colors of glass and decorating containers. Glass is naturally a blue or green tinted color depending on the natural contaminants that occur in the glass material, and certain chemicals must be added to change the color. Early glass was usually blue or green, often tinted black, or dark green. It was not until the late 1800s that brown and cobalt blue glass was developed for mass packaging, although these colors saw limited production prior. However, consumers wanted to see the contents of the bottles they were buying, creating a demand for transparent colorless glass (Kendrick 1964).

Unfortunately, the types of clear glass produced were not conducive to the processes involved in bottle making. It was not until the 1860s that mass production of clear glass bottles became feasible (Jones and Sullivan 1985). However, chemical additives to the glass were necessary to remove contaminants that affected the color. By 1875, clear glass bottles had attained widespread use (Fike 1987). Attempts to make clear glass coupled with the lack of the necessary chemicals to make it created two very distinct glass colors. Amethyst colored glass is a byproduct of attempts to make clear glass by adding manganese to the glass to bleach-out natural impurities. Although amethyst glass was clear at the time of manufacture, when exposed to the sun the glass gradually turned purple due to the manganese. This glass was predominantly made for a short time from 1880 to 1914 (Kendrick 1964; Newman 1970), although small quantities remained in production for some time afterwards. Amber or straw-colored glass (not to be confused with brown colored glass) was the substitute chemical (selenium) used to bleach-out the glass, because manganese was scarce during World War I. This type of glass was generally produced from 1914 to 1930 (Kendrick 1964).

Glass containers were typically decorated with cut designs in the early 1800s and then with pressed designs later in the century. This decorated glass was mostly used for serving items like plates, goblets, bowls, and tumblers. Advances in glass decoration would mostly be used for labeling bottles. During the mid- to late-1800s, embossing was developed and widely used to label medicine bottles. Embossing is still used today (Fike 1987). In the late 1800s and early 1900s, paper labels became common on glass bottles and starting in 1934 use of applied color labels on beverage bottles became popular (Jones and Sullivan 1985:76).

In addition to container glass, another commonly recovered glass form is flat glass, typically used as window glass but also for less common items such as picture frames. This 'window' glass was available in the colonies from early settlement days, but because

of costs and lack of availability, window glass was initially difficult to obtain, gradually becoming more widespread in the eighteenth century. The earlier window glass was commonly manufactured using the crown method, with the flat glass formed through the spinning of a punctured bubble of glass on a pontil, forming a generally circular piece of generally flat glass that was then cut into small sheets of glass. This method was widely used through the eighteenth century and into the early nineteenth century. A more refined method of making window glass was the cylinder method, which was generally contemporaneous with the crown glass but came to dominate the market by the early nineteenth century. It involved blowing large cylinders of glass that were then sliced along their length and rolled flat. Both crown and cylinder glass methods for manufacturing window glass left small linear bubbles in the glass that reflect which method was used in the manufacture of the window glass. The labor-intensive manufacture of cylinder glass, which yielded better quality and larger sheets of window glass than the crown glass technique, was the sole method used for making regular window glass in the later nineteenth and early twentieth century (Scharfenberger 2004; Fowle 1924).

During the 1910s, a new method was developed for manufacturing window glass. These efforts culminated in October 1917, when the Libbey-Owens Sheet Glass Company began commercially manufacturing flat drawn sheet glass, a window glass manufacturing technique that essentially remains in use, with its precision and lack of distortion and internal bubbles. The cost efficiency and superior quality of this type of window glass rapidly dominated the commercial market. The final piece of commercially produced cylinder glass was made in 1926 (Fowle 1924:58; Scharfenberger 2004:62). The differentiation of window glass methods of manufacture provides valuable diagnostic information about various historic sites.

5.2.2.4 Metal

The most common metal artifact found on historic and modern sites is nails. A brief history of the manufacturing techniques of nails is discussed below.

The period from 1790 to 1830 is considered a transitional period from wrought to cut nails. While prior to ca. 1790 all nails were hand wrought, early forms of machine cut nails began to be produced at that time. Over the next generation, a number of improvements were made to the machinery and iron morphology for making cut nails, gradually simplifying the process and yielding more durable nails (Nelson 1963; Edwards and Wells 1993). Minimally rusted (often burned) cut nails often can be identified and classified based on morphological distinctions documented by Edwards and Wells (1993), but more rusted specimens typically cannot be temporally refined beyond the post ca. 1790 general date range of cut nails. While small wire nails were minimally available before 1885, the machinery was not developed until ca. 1885 for mass producing wire nails. Once wire nails became readily available, they rapidly dominated the market. By 1895, over 73 percent of nails manufactured in the United States were wire nails; in 1904, it exceeded 90 percent (Adams 2002:73). While cut nails remain available, comparatively few are used.

5.2.3 Curation

All artifacts recovered are temporarily stored at AECOM's archaeology laboratory in Cincinnati, Ohio, until the materials are returned to the landowner or housed

permanently at a state-approved facility. Artifacts and documentary materials (e,g, field notes, laboratory notes, analysis forms, photographs) were processed, cataloged, analyzed, and prepared in accordance with 36 CFR Parts 79 and 800.

6. Phase I Archaeological Survey Results

The Phase I archaeological survey for the Project in Trumbull County was conducted in March 2021 and involved the archaeological field reconnaissance of the direct APE. The direct APE was defined as all areas of potential ground disturbance, as approved by the OHPO in correspondence dated February 5, 2021 (see **Appendix C**). These areas included new transmission structure locations, access roads to new and existing structure locations, and temporary-use workspaces such as spoil areas, pull sites, and crane pads. The Phase I field reconnaissance resulted in the examination of a total of 15.11 hectares (37.34 acres) of potential Project land requirements (**Appendix A, Figures 6-1** through **6-22**). A discussion of the fieldwork and assessment conducted at these locations is included in the following sections.

As described in the preceding methodology section, this field reconnaissance was undertaken through full visual pedestrian examination of the entire APE of the Project, supplemented by shovel-test excavations at 15-meter (49-foot) survey intervals in areas that warranted subsurface testing. When soil conditions and surface visibility allowed, intensive pedestrian survey at 5-meter (15-foot) intervals was conducted. A total of 723 SL were examined, of which 139 were excavated as shovel tests. The entirety of the Project area was visually assessed, supplemented through shovel testing, where possible. The majority of the access roads investigated consisted of existing gravel roads or well-established two-track roads and were evaluated as disturbed. The results from this survey work are depicted on the mapping included in **Appendix A**, projected onto both a USGS topographic quadrangle and modern aerial imagery. The following table (**Table 6-1**) summarizes the results from the Phase I archaeological survey conducted within the APE considered for the Project, by survey area category.

Table 6-1. Summary of Phase I Archaeological Field Reconnaissance Results

Survey Area Type	Count	Area Surveyed	Total SL	Shovel Tests	Resources Identified
Transmission Structure Locations	21	0.84 hectares (2.09 acres)	44	9	None
Access Roads	13	12.13 hectares (29.96 acres)	570	107	One- Site 33TR0283
Temporary-use Workspaces	10	2.14 hectares (5.29 acres)	109	23	One- Site 33TR0284
Project Totals		**15.11 hectares (37.34 acres**	**723**	**139**	**Two Sites**

The totality of the Project APE was visually examined for archaeological resources and systematically shovel tested (where warranted) at the OHPO-recommended 15-meter (49-foot) interval. As a result of the field reconnaissance, two newly-identified sites were encountered within the Project, subsequently inventoried as sites 33TR0283 and 33TR0284. The survey work did not identify any additional elements of the two previously-recorded non eligible sites delineated within/near the Project APE, sites 33TR0257 and

33TR0258. The following sections describe the conduct and results of the Phase I field survey, by survey area type.

6.1 Phase I Archaeological Survey of Transmission Structure Locations

The Phase I field reconnaissance involved the examination of both existing and proposed new transmission structure locations within the direct APE of the Project. While 40 new structures are proposed for installation as part of this Project, the westernmost 20 are located on landforms previously investigated for cultural resources (the "GM Survey"; 2019-LRP-01800 and 2019-TRU-46596) and are therefore situated outside the limits of the APE considered for these archaeological investigations. A total of 20 new structures were therefore examined during the field survey, in addition to the relocation of one existing structure from the Hanna-Highland 345kV transmission line. The field survey examined (at a minimum) a 30-meter by 15-meter workspace at each of these 21 locations, with many enlarged through survey reconnaissance of adjoining access roads and temporary-use workspaces (such as pull sites). In all, the Phase I survey of these 21 proposed structure locations a total of 0.84 hectares (2.09 acres) of potential land requirements, as summarized in the table below.

Table 6-2. Phase I Archaeological Survey Results, Transmission Structure Locations

Survey Metric	Total
Total Area Surveyed	0.84 hectares (2.09 acres)
Number of Structure Locations	21 locations
Survey Loci Examined	42 SL
Shovel Tests Excavated	Nine shovel tests
Pedestrian	Eight SL
Pedestrian- Disturbed	16 SL
Pedestrian- Wet	Nine SL
Archaeological Resources Identified	None
Potentially Eligible Resources	None

The archaeological field reconnaissance of the proposed transmission structure locations was conducted between March 8 and March 11, 2021. The survey area for each location was centered on the proposed structure location, with SL delineated at a 15-meter (49-foot) intervals were placed on either side of the center point. A total of 44 SL were assessed as part of the Phase I archaeological field reconnaissance of the structure locations.

The Existing Tie-in to Highland Substation and Structures 1 through 6 are situated on an undulating till plain east of Highland Avenue near the existing Highland electric substation operated by Ohio Edison, a FirstEnergy company. The Existing Tie-in to the Highland Substation (see **Appendix A, Figure 6-3; Appendix B**, **Plate 6.1-01**) is located within the substation itself, while Structures 1 and 2 are located in a grass field to the east (see **Appendix B**, **Plates 6.1-02** and **6.1-03**). Structures 3 and 4 are in a heavily disturbed area

of tall grasses and gravel adjacent to a buried communication utility (see **Appendix A, Figure 6-3** and **6-4; B**, **Plates 6.1-04** and **6.1-05**). Structures 5 and 6 are situated within a cultivated agricultural field adjacent to delineated wetlands on either side of the existing gravel access road to the substation (see **Appendix A, Figure 6-4; Appendix B**, **Plates 6.1-06** and **6.1-07**). Each of these structure locations are proposed to be wood structures.

Structures 7 through 13 and 41519 are located on a mostly flat till plain within, or adjacent to, existing transmission corridors between Salt Springs Road and the Norfolk Southern Railroad (see **Appendix A**, **Figures 6-15, 6-16 and 6-17)**. Structures 7 and 8 are situated within a cultivated agricultural field (see **Appendix A, Figure 6-15; Appendix B**, **Plates 6.1-08** and **6.1-09**). Structures 9 through 11 and 41519 are within delineated wetlands (see **Appendix A, Figure 6-15; Appendix B**, **Plates 6.1-10** through **6.1-13**). Structures 12 and 13 are located within wooded areas just west of the existing electric transmission corridor (see **Appendix A, Figures 6-16** and **6-17; Appendix B**, **Plates 6.1-14** and **6.1-15**).

Structures 14 through 19A are located parallel to the Norfolk Southern Railroad east of Tod Avenue SW on its northern side. The survey area alternates between a hardwood forest and a cultivated agricultural field (see **Appendix A, Figures 6-18** through **6-22; Appendix B**, **Plates 6.1-16** through **6.1-22**).

The majority of the SL investigated within the proposed structure locations were situated in areas of modern disturbance such as the existing Highland substation, buried utilities (electric, natural gas, communication), and existing gravel roads (n=16). Survey locations which fell within delineated wetlands (n=11) were visually assessed for the presence of water. In cultivated fields with good surface visibility of greater than 50 percent, intensive pedestrian survey at 5-meter (16-foot) intervals was possible (n=8). A total of nine SL were excavated as shovel tests. The excavated shovel tests within the proposed transmission structure locations typically exhibited a similar soil profile, generally ranging from a very dark grayish brown (10YR 3/2) to a brown (10YR 4/3) silt loam or silty clay loam, underlain by a light brownish gray (10YR 6/2) to a brownish yellow (10YR 6/6) silt loam to silty clay loam. The depths of Stratum I ranged from 11 to 31 centimeters below ground surface. Stratum II typically contained iron oxide. The following table (**Table 6-3**) depicts three representative soil profiles for the proposed transmission structure locations.

Table 6-3. Representative Soil Profiles, Transmission Structure Locations

SL	2-1	13-2	18-1
0-5 cm	**A Horizon** *10YR 4/3 silt loam* (0-31 cm)	**A Horizon** *10YR 4/2 silt loam* (0-21 cm)	**A Horizon** *10YR 3/3 silt loam* (0-28 cm)
5-10 cm			
10-15 cm			
15-20 cm			

SL	2-1	13-2	18-1
20-25 cm		**B Horizon** *10YR 6/4 silty clay loam* (21-31 cm)	
25-30 cm			
30-35 cm	**B Horizon** *7.5YR 5/6 mottled with 10YR 5/3 silty clay loam* (31-41 cm)	***Unexcavated***	**B Horizon** *10YR 6/3 silt loam* (28-40 cm)
35-40 cm			

No cultural resources were identified during the course of the Phase I archaeological field reconnaissance of the 21 proposed transmission structure locations.

6.2 Phase I Archaeological Survey of Proposed Access Roads

The Phase I field reconnaissance examined 14 proposed roads designed to serve as access to the transmission corridor and structures within the Project APE. A majority of these roads were existing graveled drives, farm two-tracks, and well-worn service/ maintenance roads utilized regularly to access the existing transmission line ROW within and around the Project. Where necessary, shovel tests were excavated on proposed access roads which did not display visible evidence of extensive modern disturbance or the presence of gravels/ improvements that would preclude the need for shovel testing. A total of 12.13 hectares (41.26 acres) of potential land requirements was surveyed at these access roads.

Table 6-4. Phase I Archaeological Survey Results, Proposed Access Roads

Survey Metric	Total
Total Area Surveyed	12.13 hectares (29.96 acres)
Number of Access Roads	14
Survey Loci Examined	570 SL
Shovel Tests Excavated	107 shovel tests
Pedestrian	108 SL
Pedestrian- Disturbed	301 SL
Pedestrian- Wet	54 SL
Archaeological Resources Identified	One – 33TR0283
Potentially Eligible Resources	None

Archaeological field reconnaissance of the proposed access road locations was conducted between March 8 and March 11, 2021. A total of 570 SL were assessed as part of the Phase I archaeological field reconnaissance of the proposed access roads.

The majority of the SL investigated along the proposed access roads were visually assessed as disturbed, commonly the result of the roads being previous constructed gravel roads to transmission corridors adjacent to the Project area or to oil and natural gas facilities (n=301). A total of 54 SL were identified within areas of standing water or a delineated wetland. In cultivated agricultural fields with ground surface visibility of greater than 50-percent, controlled surface inspection was conducted at 5-meter (15-foot) intervals (n=108). The remaining 107 sample loci were excavated as shovel tests, three of which exhibited signs of modern disturbance. Below is a summary of the Phase I archaeological field reconnaissance.

- **Access Road 1** (see **Appendix A, Figures 6-1** through **6-5**) begins as a gravel road south of Brunstetter Road and heads south. When it reaches a point approximately parallel to the Highland substation, the road turns and heads west towards Structure 1 and Structure 2 through a grass field. As the proposed road heads west towards Structure 3 and 4 the survey area is heavily disturbed, resulting from modern disturbances from buried utilities and the construction of the adjacent substation. The remainder of Access Road 1 from Structure 4 towards Structure 5 and 6 is an existing gravel road terminating as Highland Avenue (see **Appendix B**, **Plates 6.2-01** and **6.2-02**). No archaeological resources were identified along Access Road 1.

- **Access Road 2** (**Appendix A, Figures 6-5** and **6-6**) is located west of Highland Avenue at the edge of an agricultural field. This road terminates at an existing transmission structure (42035) (see **Appendix B**, **Plate 6.2-03**). Access Road 2 and Access Road 3 are linked between existing structures (42035 and 42037) along an existing transmission maintenance road through a cultivated field. No archaeological resources were identified along Access Road 2.

- **Access Road 3** begins as an existing gravel road west of Highland Avenue that provides access to a nearby crude oil storage tank (see **Appendix A, Figures 6-5**, **6-6** and **6-7**). This gravel road ends at the existing transmission corridor and heads east to existing Structure 42036 and west to existing Structure 42037 (**Appendix A, Figures 6-7** and **6-8**). The portion of the survey area between these two structures consisted of an agricultural field with poor ground surface visibility as a result of detritus from previously harvested crops and was shovel tested at 15-meter (49-foot) intervals (see **Appendix B**, **Plates 6.2-04** and **6.2-05**). No archaeological resources were identified along Access Road 3.

- **Access Road 4** (**Appendix A, Figures 6-8, 6-9** and **6-10**) begins as an existing gravel road north of Virginia Drive that provides access to a crude oil storage tank near existing structure location 42039. Access Road 4 then heads south towards structure 42040 and north towards structure 42038 through a mostly flat, cultivated agricultural field. As a result of good ground surface visibility, a controlled pedestrian survey at 5-meter (15-foot) intervals could be conducted (see **Appendix B**, **Plates 6.2-06** and **6.2-07**). One archaeological resource was identified during the course of survey of Access Road 4. Site 33TR0283 (Field Site FE-HMTP-01) consists of a broad surface scatter of historic cultural material spread across the Project APE and adjoining agricultural field. Historic materials

were sampled from the surface between SL AR4-60 and AR4-64 across the width of the Project APE at this location, while five shovel tests excavated within the surface scatter were negative for cultural materials. Further discussion of this resource is detailed in **Chapter 7**.

- **Access Road 5** is a short existing gravel road south of Salt Springs Road that provides access to structure 42041 (see **Appendix A, Figure 6-12; Appendix B**, **Plate 6.2-08**). No archaeological resources were identified along Access Road 5.

- **Access Road 6** (**Appendix A, Figures 6-12** through **6-22**) begins as an existing gravel road south of Salt Springs Road. At a point parallel to existing Structure 42043, Access Road 6 heads east through a cultivated agricultural field. As a result of good ground surface visibility, a controlled pedestrian survey at 5-meter (15-foot) Intervals could be conducted in this field (see **Appendix B**, **Plate 6.2-09**). From Structure 42043 Access Road 6 follows the existing transmission corridor towards proposed Structures 8 through 10. This survey area along this portion consists of mostly a large delineated wetland. Access Road C runs between Structure 10 and Structure 13. At Structure 13, Access Road 6 resumes, and heads west through a hardwood forest towards Structure 14, running parallel to the Norfolk Southern Railroad. From Structure 14 through Structure 18 the survey area consists of alternating hardwood forests, cultivated agricultural fields, and delineated wetlands (see **Appendix B**, **Plate 6.2-10**). Heading west from Structure 18, Access Road 6 follows a grass road with a buried water line alongside it, terminating at Tod Avenue. No archaeological resources were identified along Access Road 6.

- **Access Roads A and B** (**Appendix A, Figure 6-15**) begin at Structure 8 and head east to workspaces PS-1 and PS-2 and south to workspace PS-3, respectively. The survey area at both roads consists of a delineated wetland with standing water at the surface (see **Appendix B**, **Plates 6.2-11** and **6.2-12**). No archaeological resources were identified along Access Roads A and B.

- **Access Road C** is located between Structure 10 and Structure 13 along the edge of a hardwood forest and the existing transmission corridor (**Appendix A, Figures 6-15, 6-16** and **6-17**). The majority of the survey area consisted of delineated wetlands with standing water (see **Appendix B**, **Plate 6.2-13**). Shovel testing was possible from SL ARC-1 through ARC-12, with several of the excavated shovel tests showing signs of modern disturbance. No archaeological resources were identified along Access Road C.

- **Access Road D** (**Appendix A, Figure 6-22**) begins at Tod Avenue and heads east, following an existing gravel road. This road provides access to the nearby Norfolk Southern Railroad and to a municipal water line (see **Appendix B**, **Plate 6.2-14**). The survey area for Access Road D was visually assessed as disturbed. No archaeological resources were identified along Access Road D.

- **Access Road E** (**Appendix A, Figure 6-12, 6-13** and **6-14**) begins at Salt Springs Road and heads south, following an existing gravel road that provides access to a

crude oil storage tank. The portion of the survey area along this road was visually assessed as disturbed. At a point parallel to Structure 42043, AR-E heads west through a mostly flat, cultivated agricultural field. As a result of good ground surface visibility, a controlled pedestrian survey at 5-meter (15-foot) intervals could be conducted across this portion of the survey area (see **Appendix B**, **Plates 6.2-15** and **6.2-16**). No archaeological resources were identified along Access Road E.

- **Access Road F** begins at Access Road-6 and heads south, following an existing gravel access road (see **Appendix A, Figure 6-14; Appendix B**, **Plate 6.2-17**). Terminating at Structure 42044, the majority of the survey area was visually assessed as disturbed, with only a small portion consisting of a cultivated agricultural field. As a result of good ground surface visibility, a controlled pedestrian survey at 5-meter (15-foot) intervals could be conducted across this portion of the survey area (see **Appendix B**, **Plate 6.2-18**). No archaeological resources were identified along Access Road F.

- **Access Road G** (**Appendix A, Figures 6-21** and **6-22**) begins at Tod Avenue and heads east, following an existing gravel and dirt farm road. This portion of the survey area was visually assessed as disturbed. At SL ARG-11, Access Road G heads southwest towards Structure 18 through an area of tall grasses between an agricultural field and a steep slope (see **Appendix B, Plates 6.2-19** and **6.2-20**). Many of the shovel tests excavated in this portion contained high amounts of large rocks, with some reaching bedrock at a shallow depth. No archaeological resources were identified along Access Road G.

- **Access Road Y** (**Appendix A, Figure 6-8**) begins at existing structure 42038 and heads northeast towards the CSX railroad through a mostly flat, cultivated agricultural field, terminating was temporary workspace WS-1. As a result of good ground surface visibility, a controlled pedestrian survey at 5-meter (15-foot) intervals could be conducted (see **Appendix B**, **Plate 6.2-21**). No cultural resources were identified along Access Road Y.

As with the transmission structure locations, the soils encountered across the access roads were generally similar in profile. Two strata were typically encountered, with Stratum I usually ranging from a very dark grayish brown (10YR 3/2) to a brown (10YR 4/3) silt loam or silty clay loam, while Stratum II was commonly a grayish brown (10YR 5/2) to a brownish yellow (10YR 6/6) silt loam to silty clay loam. The shovel test excavated at AR1-33 was comprised of a 21-centimeter-thick Ap horizon consisting of a brown (10YR 4/3) silt loam, underlain by a grayish brown (10YR 5/2) mottled with a strong brown (7.5YR 5/6) silty clay loam. Sample locus AR6-26 displayed a soil profile of 23 centimeters of a dark grayish brown (10YR 4/2) silt loam, underlain by a light yellowish brown (10YR 6/4) silty clay loam. Shovel test ARG-7 was comprised of 24 centimeters of a brown (10YR 4/3) silt loam, underlain by a pale brown (10YR 6/3) mottled with a yellowish brown (10YR 5/6) silt loam with iron oxide and manganese. These three soil profiles are depicted in the following table (**Table 6-5**).

Table 6-5. Representative Soil Profiles, Proposed Access Roads

<table>
<tr><th>SL</th><th>AR1-33</th><th>AR6-26</th><th>ARG-7</th></tr>
<tr><td>0-5 cm</td><td rowspan="3">Ap Horizon
10YR 4/3 silt loam
(0-21 cm)</td><td rowspan="3">Ap Horizon
10YR 4/2 silt loam
(0-23 cm)</td><td rowspan="3">Ap Horizon
10YR 4/3 silt loam
(0-24 cm)</td></tr>
<tr><td>5-10 cm</td></tr>
<tr><td>10-15 cm</td></tr>
<tr><td>15-20 cm</td><td rowspan="2">Bt Horizon
10YR 5/2 mottled with 7.5YR 5/6 silty clay loam
(21-31 cm)</td><td rowspan="2">Bt Horizon
10YR 6/4 silty clay loam
(23-33 cm)</td><td rowspan="2">Bt Horizon
10YR 6/3 mottled with 10YR 5/6 silt loam with iron oxide and manganese
(24-35 cm)</td></tr>
<tr><td>20-25 cm</td></tr>
<tr><td>25-30 cm</td><td rowspan="2">Unexcavated</td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td>30-35 cm</td></tr>
</table>

One archaeological resource was identified during survey of the access road alignments. Subsequently inventoried with the OHPO as site 33TR0283, this resource likely represents a twentieth century field dump of domestic and architectural debris spread across the margins of a large agricultural field and adjoining wooded lot. Further discussion of this resource is detailed in **Chapter 7**.

6.3 Phase I Archaeological Survey of Temporary-use Workspaces

Designed for temporary use during construction of the Project, 10 distinct workspaces are included in the Project APE examined during the March 2021 Phase I field reconnaissance of the Project. These workspaces included pull sites, spoil areas, crane sites and guard locations, and measure a combined 2.14 hectares (5.29 acres) in size. The following table outlines the survey metrics associated with the fieldwork conducted at these locations.

Table 6-6. Phase I Archaeological Survey Results, Temporary-use Workspaces

Survey Metric	Total
Total Area Surveyed	2.14 hectares (5.29 acres)
Number of Workspaces	10 workspaces
Survey Loci Examined	109 SL
Shovel Tests Excavated	23 shovel tests
Pedestrian	27 SL
Pedestrian- Disturbed	18 SL
Pedestrian- Wet	39 SL

Survey Metric	Total
Pedestrian- Slope	2 SL
Archaeological Resources Identified	One – Site 33TR0284
Potentially Eligible Resources	None

As indicated above, a total of 109 SL were assessed as part of the Phase I archaeological field reconnaissance of the proposed workspaces. The majority of the SL investigated within the proposed workspaces were located within areas of standing water, or a delineated wetland (n=39). Several workspaces displayed extensive modern disturbances, primarily resultant from existing maintained transmission corridors and railroads (n=18). In cultivated agricultural fields with ground surface visibility of greater than 50-percent, controlled surface inspection was conducted at 5-meter (15-foot) intervals (n=27). The remaining 23 SL were excavated as shovel tests, 18 of which exhibited signs of modern disturbance. Below is a summary of the Phase I archaeological field reconnaissance with the proposed temporary-use workspaces.

- **Workspace CP-1** (see **Appendix A, Figure 6-15**) is a small, proposed workspace south of Structure 8 located entirely within a delineated wetland with standing water (see **Appendix B**, **Plate 6.3-01**). No cultural resources were identified within Workspace CP-1.
- **Workspaces PS-1 and PS-2** (see **Appendix A, Figure 6-15**) are two small, proposed workspaces east of Structure 8 in a mostly flat, cultivated agricultural field (see **Appendix B**, **Plates 6.3-02** and **6.3-03**). Due to poor ground surface visibility, all four SL within these workspaces were excavated as shovel tests. No cultural resources were identified within Workspaces PS-1 and PS-2.
- **Workspace PS-3** (see **Appendix A, Figure 6-15**) is a small, proposed workspace situated south of Structure 8 located entirely within a delineated wetland with standing water (see **Appendix B**, **Plate 6.3-04**). No cultural resources were identified within Workspace PS-3.
- **Workspace PS-4** is located entirely within an existing transmission corridor to the east of Structure 13 (see **Appendix A, Figure 6-17**). The eastern portion of the workspace consists of a low-lying, delineated wetland with standing water. The remainder of the workspace was shovel tested, with many of the excavated shovel tests showing evidence of modern disturbance (see **Appendix B**, **Plate 6.3-05**). No cultural resources were identified within Workspace PS-4.
- **Workspace SA-1** (see **Appendix A, Figure 6-2**) is a small, proposed workspace located east of the Highland Substation. The entirety of the workspace consists of large spoil piles covered with tall grasses and was visually assessed as disturbed (see **Appendix B**, **Plate 6.3-06**). No cultural resources were identified within Workspace SA-1.
- **Workspace SA-2** is a large, proposed workspace west of Access Road F in a mostly flat cultivated agricultural field (see **Appendix A, Figure 6-14; Appendix B**, **Plate 6.3-07**). Due to good ground surface visibility of greater than 50-percent,

a controlled pedestrian survey was conducted at 5-meter (15-foot) intervals. Two shovel tests were excavated within the workspace, of which one (SA2-E2) was positive for cultural material. This identified resource, subsequently inventoried as site 33TR0284, yielded two historic artifacts and a prehistoric lithic specimen from the two positive shovel tests. Eight additional intrasite shovel tests were excavated in cardinal directions at 5-meter (16-foot) and 10-meter (32-foot) intervals, all of which were negative for additional cultural material.

- **Workspaces WS-1, WS-2, and WS-3** are located on the north and south side of the Norfolk Southern Railroad between Structures 19 and 19A. The majority of SL in these workspaces were visually assessed as disturbed or on steep slopes associated with the railroad corridor (see **Appendix A, Figure 6-22; Appendix B**, **Plates 6.3-08** through **6.3-10**). A portion of WS-2 is on the slightly south-facing slope of an agricultural field and was shovel tested. No cultural resources were identified within Workspaces WS-1, WS-2, or WS-3.

As with the two survey locations described in Sections 6.1 and 6.2, the soils encountered within the proposed workspaces were generally similar in profile. Stratum I typically ranged from a very dark grayish brown (10YR 3/2) to a dark yellowish brown (10YR 4/4) silt loam or silty clay loam, while Stratum II generally consisted of a brown (10YR 5/3) to a brownish yellow (10YR 6/6) silt loam to silty clay loam. The shovel test excavated at sample locus PS4-A2 was composed of a 20-centimeter-thick Ap horizon consisting of a dark grayish brown (10YR 4/2) silt loam, underlain by a light yellowish brown (10YR 6/4) silty clay loam Bt horizon. Shovel test SA2-E2 displayed a soil profile of 26 centimeters of a dark grayish brown (10YR 4/2) silt loam Ap horizon, underlain by Bt horizon of a brown (10YR 5/3) silty clay loam containing iron oxide. One prehistoric lithic flake and two container glass fragments were recovered from the Ap horizon on this shovel test. Shovel test WS1-A1 was comprised of 15 centimeters of a very dark grayish brown (10YR 3/2) silt loam, underlain by a light brownish gray (10YR 6/2) silt loam with iron oxide. These three soil profiles are depicted in the following table (**Table 6-7**).

Table 6-7. Representative Soil Profiles, Temporary-Use Workspaces

<table>
<tr><th>SL</th><th>PS4-A2</th><th>SA2-E2</th><th>WS1-A1</th></tr>
<tr><td>0-5 cm</td><td rowspan="4">Ap Horizon
10YR 4/2 silt loam
(0-20 cm)</td><td rowspan="5">Ap Horizon
10YR 4/2 silty clay loam
(0-26 cm)

1 flake, 2 container glass</td><td rowspan="3">Ap Horizon
10YR 3/2 silt loam
(0-15 cm)</td></tr>
<tr><td>5-10 cm</td></tr>
<tr><td>10-15 cm</td></tr>
<tr><td>15-20 cm</td><td rowspan="2">Bt Horizon
10YR 6/2 silt loam with iron oxide
(15-25 cm)</td></tr>
<tr><td>20-25 cm</td><td>Bt Horizon
10YR 6/4 silty clay</td></tr>
</table>

SL	PS4-A2	SA2-E2	WS1-A1
25-30 cm	*loam* (20-30 cm)	**Bt Horizon** *10YR 5/3 silty clay loam with iron oxide* (26-38 cm)	***Unexcavated***
30-35 cm	***Unexcavated***		
35-40 cm			

One archaeological resource was identified as a result of field survey conducted on the additional temporary workspaces. Site 33TR0284, an ephemeral deposit of historic and prehistoric materials, was encountered during the survey of Workspace SA-2. Further discussion of this resource is detailed in **Chapter 7**.

7. Archaeological Resources Identified

The AECOM Phase I archaeological field reconnaissance examined the entirety of the direct APE for archaeological resources. As a result of these investigations, two archaeological resources were identified within the APE, subsequently inventoried with the OHPO as sites 33TR0283 and 33TR0284 (see **Appendix A, Figure 7-1**). The following chapter presents the discussion and analysis of the two archaeological resources encountered within the direct APE of the Project during the AECOM Phase I survey. Mapping for these resources can be found in **Appendix A** of this report, while relevant photographs are contained in **Appendix B** and the field forms recorded during the archaeological survey in **Appendix D**.

Table 7-1. Inventory of Archaeological Resources Identified

Site ID	Field ID	Site Type	Temporal Association	NRHP Recommendation
33TR0283	**FE-HMTP-01**	Historic (n=83) surface scatter	Historic- Late nineteenth century to mid-twentieth century	Not Eligible
33TR0284	**FE-HMTP-02**	Prehistoric (n=1) and historic (n=2) subsurface scatter	Prehistoric-Indeterminate Historic-Indeterminate	Not Eligible

7.1 Site 33TR0283

Locational Data

- **Field ID**: FE-HMTP-01
- **Location**: *Warren, Ohio* 7.5' USGS Quadrangle
- **County**: Trumbull County
- **Municipality**: Lordstown
- **UTM Coordinates (NAD 1983):** 17S, E445224.75 N4384578.69

Environment and Setting

- **Topographic Setting**: Till Plain
- **Elevation**: 236.84 meters (777.03 feet) amsl
- **Distance to Water**: 180 meters (591 feet) east of an unnamed tributary of Mud Creek
- **Soils**: Wadsworth silt loam, 0 to 2 percent slopes
- **Current Land Use**: Agricultural field

Archaeological Deposit Characteristics

- **Site Type**: Historic – Artifact scatter
- **Temporal Association**: Historic – late nineteenth to early twentieth century
- **Vertical Dimensions**: Surface
- **Horizontal Dimensions**: 239 square meters (2570 square feet)
- **Material Recovered**: Historic-83: Ceramic (35), Glass (47), Metal (1)
- **Artifact Catalog Reference**: FS 001-002
- **Cultural Features Present**: None known

- **NRHP Recommendation**: **Not Eligible, No Further Work**

Site 33TR0283 was identified through the recovery of 83 historic artifacts from the exposed ground surface of an agricultural field during survey of a potential access road proposed for use during construction of the Project (**Appendix A, Figures 7-1** and **7-2**). The site is located just south of an existing transmission structure (Structure 42038), approximately 250 meters (820 feet) south of the CSX railroad and 500 meters (1,640 feet) north-northeast of the intersection of Virginia Drive and Mary Drive. The ground surface visibility of the agricultural field at the time of survey was greater than 50 percent (see **Appendix B, Plates 7.1-01** and **7.1-02**), which facilitated the controlled pedestrian inspection of the APE across this landform. A representative 20 percent sample of the historic specimens visible on the ground surface were collected, typically diagnostic artifacts. Additional historic materials of similar character were visually observed extending outside of the Project APE to the west but were not collected.

Three shovel tests (SL AR4-61, AR4-62 and AR4-63) were excavated at a 15-meter (49-foot) interval within the surface-defined limits of the historic scatter, in effort to identify subsurface artifacts or cultural features. Two additional shovel tests (SL AR4-60 and AR4-64) were excavated at the southern and northern edges of the site (respectively). All five shovel tests were negative for any subsurface artifacts or features. The shovel test excavated at SL AR4-61, located near the southeastern extent of the surface collection, displayed a soil profile consisting of 18 centimeters of a very dark grayish brown (10YR 3/2) silt loam Ap horizon, underlain by a light yellowish brown (10YR 6/4) silt loam Bt horizon. Shovel test AR4-62, excavated near the east-central portion of the surface collection, exhibited a soil profile of a brown (10YR 4/3) silt loam Ap horizon, underlain by a light yellowish brown (10YR 6/4) mottled with brownish yellow (10YR 6/6) silty clay loam Bt horizon. The following table (**Table 7-2**) displays the representative soil profiles of the two shovel tests described above.

Table 7-2. Representative Soil Profiles, Site 33TR0283

<table>
<tr><th>SL</th><th>AR4-61</th><th>AR4-62</th></tr>
<tr><td>0-5 cm</td><td rowspan="4">Ap Horizon
10YR 3/2 silt loam
(0-18 cm)</td><td rowspan="3">Ap Horizon
10YR 4/3 silt loam
(0-15 cm)</td></tr>
<tr><td>5-10 cm</td></tr>
<tr><td>10-15 cm</td></tr>
<tr><td>15-20 cm</td><td rowspan="2">Bt Horizon
10YR 6/4 mottled with 10YR 6/6 silty clay loam
(15-25 cm)</td></tr>
<tr><td>20-25 cm</td><td rowspan="2">Bt Horizon
10YR 6/4 silt loam
(18-28 cm)</td></tr>
<tr><td>25-30 cm</td><td>Unexcavated</td></tr>
</table>

The historic artifacts collected (n=83) from the exposed ground surface at 33TR0283 represent approximately 20 percent of the observed items within the APE, and artifact recovery was generally focused on diagnostic objects. The historic artifact assemblage is composed almost exclusively of domestic items (n=82). A sample of the domestic artifacts

recovered can be found in **Appendix B, Plates 7.1-03, 7.1-04** and **7.1-05**. A single architectural artifact was collected; a coarse ceramic drainage pipe fragment (see **Appendix B, Plate 7.1-06**). No windowpane, brick, or nails were observed across the ground surface within the Project APE.

The domestic artifacts include glass container fragments, stoneware, terra cotta, and tableware fragments of whiteware, white-bodied earthenware, redware, and semi-porcelain. A variety of decoration techniques and styles are represented in the recovered whiteware, white-bodied ceramics, and semi-porcelain. Whiteware ceramics consisted of blue transfer printed (n=2), decalcomania (n=3), hand painted (n=1), and undecorated (n=2). White-bodied ceramic fragments included decalcomania (n=1), tinted colored glaze (n=6), and banded slip (n=1). Semi-porcelain tableware fragments had single count of hand paint, molded (n=1), and undecorated (n=4). One of the white-bodied ceramics was a serving dish fragment with a handle molded into the head and neck of a possible swan (see **Appendix B, Plate 7.1-07**).

Two of the tableware fragments display partial maker's marks, one evident on a semi-porcelain plate and the other on a fragment of whiteware. There is not enough of the mark on the semi-porcelain fragment to attribute it to a specific maker, however the mark on the whiteware fragment is associated with the Edwin Knowles China Company out of Liverpool, Ohio. The specific mark dates ca. 1900-1948 (Kowalsky & Kowalsky 1999).

The glass artifacts include mostly container glass (n=35), in addition to tableware (n=3), kitchenware (n=2), closures (n=2), electrical (n=1), and unidentified (n=4). A variety of colors are represented including colorless, aqua, amber, opaque white and green, and solarized amethyst. Two additional colors include a depression glass fragment in cranberry and a pattern molded iridescent carnival glass dish fragment. The container glass collected included machine-made with Owen's scar and stippling.

Of the container glass, 14 had full or partial maker's marks on the base. Seven of these marks are Owens-Illinois Glass Company, with three exhibiting discernable date codes of 1935 and 1937. Other maker's marks include Armstrong Cook Company (1938 to early 1950s), Hazel Atlas Company (1902-1964), Resinol Chemical Company (early to mid-20th century), Fireking ovenware (1945-1975), and Owens Bottle Company (1911-1929). (glassbottlemarks.com and campusarch.msu.edu).

The one metal artifact collected was a tin lid to a Nivea Cream container. According to the company's website, the design of the lid dates to ca. 1949 (Beiersdorf 2021).

The combined artifact assemblage recovered from 33TR0283 suggest the site represents a deposit of materials dating from the late nineteenth to mid-twentieth century. The two specimens which exhibit a manufacturing date range from the first half of the nineteenth century (two whiteware fragments decorated with blue transfer print) likely represent "heirloom" artifacts within the larger assemblage which dates to a later depositional period. The following table (**Table 7-3**) provides the detailed analysis conducted on the recovered artifact assemblage from site 33TR0283.

Table 7-3. Historic Artifact Assemblage, Site 33TR0283

Artifact Table			Attributes	Date Range	Reference	Count
Ceramic						
Tableware	Cup	Semi-porcelain	Molded	--	--	1
			Undecorated	--	--	1
	Bowl	White-bodied	Tinted glaze-pink	--	--	2
	Plate	Whiteware	Decalcomania	post ca. 1880	Kamm 1956; Pittman 1987	3
			Hand painted	ca. 1820-1900+	Ramsay 1947: 152-153	1
		White-bodied	Tinted glaze-green	--	--	1
		Semi-porcelain	Undecorated	--	--	1
	Serving	Redware	Undecorated	--	--	1
		White-bodied	Molded and tinted glaze-red	--	--	1
	Unidentified	Whiteware	Transfer print, blue	ca. 1820-1859	Ramsay 1947, Miller 1991, Samford 1997	2
			Undecorated	ca. 1820-1900+	Ramsay 1947	2
		White-bodied	Decalcomania	post ca. 1880	Kamm 1956; Pittman 1987	1
			Tinted glaze-yellow	--	--	1
			Tinted glaze-green	--	--	1
		Semi-porcelain	Molded-ribbed	--	--	1
			Hand painted	--	--	1
			Undecorated	--	--	2
Container	Crock	Stoneware	Bristol glaze/ Albany slip	1884-1920s	Greer 1996: 210-212; Miller 2000: 10	4
			Albany slip	1805-1920	Miller 2000: 10	3
			Bristol glaze	post 1884	Greer 1996: 210	1
Furnishing	Bathroom Furniture	Semi-porcelain	Undecorated	--	--	1
	Flower pot	Terra Cotta	Undecorated	--	--	1
Architectural	Drainage pipe	Coarse earthenware	Undecorated	--	--	1
Unidentified		White-bodied	Banded green	--	--	1
Glass						
Container	Bottle, beverage	Crown cap	Colorless	post 1892	Jones and Sullivan 1985: 163	1
		Machine made	Green	post 1889	Jones and Sullivan 1985: 38-39	1
	Bottle, hard liquor	Machine made	Colorless	post 1889	Jones and Sullivan 1985: 38-39	1
		Machine made	Solarized, amethyst	ca. 1880s-1920	Lindsey 2021	1

Artifact Table			Attributes	Date Range	Reference	Count
		Machine made, stippled	Amber	1940s-early 1950s	Lindsay 2021	1
	Bottle, pharmaceutical	Machine made	Amber, maker's marks	ca. 1938-early 1950s	glassbottlemarks.com	1
				1937	glassbottlemarks.com	1
			Colorless, maker's mark	1919-1929	glassbottlemarks.com	2
			Opaque, white, maker's mark	early to mid-20th century	Victorian collections.net	1
	Bottle, food storage	Machine made	Amber, maker's mark	ca. 1940s-early 1950s	Jones and Sullivan 1985	1
		Machine made	Colorless	post 1889	Jones and Sullivan 1985: 38-39	2
	Bottle	Molded	Aqua	--	--	1
		Machine made	Amber	post 1889	Jones and Sullivan 1985: 38-39	1
		Machine made, Owens scar	Colorless, maker's mark	1911-1929	glassbottlemarks.com	1
		Machine made, stippled	Colorless	post 1940s	Lindsay 2021	3
		Unidentified	Amber	--	--	1
	Jar	Machine made	Colorless, maker's mark	ca. 1929-late 1950s	glassbottlemarks.com	2
		Machine made, Owens scar	Aqua	1904-early 1950s	Jones and Sullivan 1985: 38-39	1
		Machine made, stippled	Colorless	1940s-early 1950s	Lindsay 2021	3
	Canning Jar	Machine made	Aqua	post 1889	Jones and Sullivan 1985: 38-39	1
	Toiletry	Machine made	Opaque white	post 1889	Jones and Sullivan 1985: 38-39	2
	Unidentified	Machine made	Colorless	post 1889	Jones and Sullivan 1985: 38-39	2
			Opaque white	post 1889	Jones and Sullivan 1985: 38-39	2
		Molded	Opaque white	--	--	1
			Aqua	--	--	1
Kitchenware	Baking Dish	Maker's mark	Opaque green	1945-1975	campusarch.msu.edu	1

Artifact Table			Attributes	Date Range	Reference	Count
	Unidentified	Machine made	Solarized, amethyst	ca. 1880s-1920	Lindsey 2021	1
Tableware	Serving	Pattern mold	Colorless	--	--	1
	Unidentified	Unidentified	Cranberry, depression glass	ca. 1920-1940	virtual.parkland.edu	1
		Pattern mold	Iridescent	ca. 1900-1940	Deiss 1981: 86	1
Closure	Lid liner		Milk glass	post 1869	Toulouse 1969: 499	2
Electrical	Insulator, Unipart Pin		Aqua	--	--	1
Unidentified			Aqua	--	--	2
			Colorless flat glass	--	--	1
			Solarized, amethyst	ca. 1880s-1920	Lindsey 2020	1
Metal						
Closure	Lid	Lotion	Tin	ca. 1949	Beiersdorf 2021	1
Historic Artifact Total						**83**

Following identification of this surface scatter within the Project APE, a review of available historic maps and aerial photographs was conducted, in an effort to define a context for the archaeological site delineated at this location. No structures are depicted in the 1856 *Map of Trumbull County, Ohio*, 1874 *Atlas of Trumbull County*, 1899 *Atlas and Directory of Trumbull County, Ohio,*1908, 1959, 1970, 1979, 1984, or 1994 *Warren, Ohio* USGS topographic maps of this area. The available historic aerials show a woodlot covering the site area from 1950 through 1970, with the creation of the existing transmission corridor evident on the 1980 mapping. The woodlot is present adjacent to the corridor on a 2012 aerial but appears to have been cleared further to the east on a 2013 aerial. The current edge of the wood line is roughly 120 meters (394 feet) to the east of the transmission structure. The absence of any evidence for a structure or sustained occupation in the vicinity of this resource, and extensive distance from an historic era or modern road alignment, suggests that the historic materials encountered at this location likely represent a field dump of domestic debris which may have been utilized during the first half of the twentieth century.

Based on the data collected as part of the Phase I archaeological investigations, site 33TR0283 appears to represent a surface scatter of historic debris, likely the result of one (or multiple) dumping episodes over the first half of the twentieth century. Shovel testing within and adjacent to the surface scatter, visual reconnaissance of the APE and surrounding landforms, and review of historic mapping failed to yield any evidence for a structure and/or sustained occupation in the vicinity of this site. As a result, site 33TR0283 is recommended as not eligible for the NRHP, due to the absence of any subsurface context to the site, evidence for intact features or deposits, and likelihood that the surface deposit represents the discard of historic debris from a separate location. The research potential of this resource has likely been exhausted, as further testing of this resource is unlikely to yield data relevant towards a better understanding of historic settlement and occupation of Trumbull County.

7.2 Site 33TR0284

Locational Data

- **Field ID**: FE-HMTP-02
- **Location**: *Warren, Ohio* 7.5' USGS Quadrangle
- **County**: Trumbull County
- **Municipality**: Lordstown
- **UTM Coordinates (NAD 1983):** 17S, E444818.29 N4384028.78

Environment and Setting

- **Topographic Setting**: Till Plain
- **Elevation**: 235.97 meters (774.18 feet) amsl
- **Distance to Water**: 518 meters (1700 feet) north of an unnamed tributary of Mud Creek
- **Soils**: Westgate silt loam, 6 to 12 percent slopes, eroded
- **Current Land Use**: Agricultural field

Archaeological Deposit Characteristics

- **Site Type**: Multi-component – Artifact scatter
- **Temporal Association**: Prehistoric- Indeterminate; Historic- Indeterminate
- **Vertical Dimensions**: 0.00-0.26 meters below ground surface
- **Horizontal Dimensions**: 800 square meters (8611 square feet)
- **Material Recovered**: Prehistoric-1: Debitage (1), Historic-2: Glass (2)
- **Artifact Catalog Reference**: FS 001
- **Cultural Features Present**: None known
- **NRHP Recommendation**: **Not Eligible, No Further Work**

Site 33TR0284 was identified through the recovery of one prehistoric specimen and two historic artifacts from a single shovel test excavated in temporary workspace SA 2, situated within a agricultural field south of Salt Springs Road and west of Highland Avenue (**Appendix A, Figures 7-1** and **7-3**). At the time of survey this site was located within a cultivated field which displayed ground surface visibility greater than 50 percent at the time of survey (see **Appendix B, Plates 7.2-01** and **7.2-02**). The entirety of SA 2 was pedestrian inspected for cultural materials, supplemented by the excavation of two shovel tests, SA2-B3 and SA2-E2, in an attempt to identify any subsurface artifacts and gain a soil profile of the area.

The three cultural specimens recovered from site 33TR0284 were identified within the Ap (plowzone) soil horizon of the shovel test excavated at SL SA2-E2. Four additional shovel tests were excavated at 15-meter (49-foot) intervals in cardinal directions around the positive shovel test. After confirming these shovel tests were negative for cultural material, eight radials were excavated at 5-meter (16-foot) intervals around SL SA2-E2. All eight of the radials were likewise negative for artifacts.

The soil profiles encountered within the 12 shovel tests excavated at and near this location were generally consistent in character. The shovel test excavated at SL SA2-E2 displayed a soil profile containing 26 centimeters of a dark grayish brown (10YR 4/2) silty clay loam Ap horizon, underlain by a yellowish brown (10YR 5/3) silty clay loam with iron oxide Bt horizon. This shovel test was excavated to a depth of 38 centimeters below ground surface and recovered one prehistoric lithic flake and two historic container glass fragments.

Sample locus SA2-E2 +10m W was excavated 10 meters west of the initial positive shovel test. The soil profile consisted of a 31-centimeter-thick Ap horizon of a brown (10YR 4/3) silty clay loam, underlain by a light brownish gray (10YR 6/2) mottled with a brownish yellow (10YR 6/6) silty clay loam Bt horizon. SL SA2-E2 +10m W was excavated to a depth of 41 centimeters below ground surface and did not recover any cultural material. The following table (**Table 7-4**) displays the soil profiles referenced above.

Table 7-4. Representative Soil Profiles, Site 33TR0284

<table>
<tr><th>SL</th><th>SA2-E2</th><th>SA2-E2 +10m W</th></tr>
<tr><td>0-5 cm</td><td rowspan="5">Ap Horizon
10YR 4/2 silty clay loam
(0-26 cm)</td><td rowspan="6">Ap Horizon
10YR 4/3 silty clay loam
(0-31 cm)</td></tr>
<tr><td>5-10 cm</td></tr>
<tr><td>10-15 cm</td></tr>
<tr><td>15-20 cm</td></tr>
<tr><td>20-25 cm</td></tr>
<tr><td>25-30 cm</td><td rowspan="3">Bt Horizon
10YR 5/3 silty clay loam with iron oxide
(26-38 cm)</td></tr>
<tr><td>30-35 cm</td><td rowspan="2">Bt Horizon
10YR 6/2 mottled with 10YR 6/6 silty clay loam
(31-41 cm)</td></tr>
<tr><td>35-40 cm</td></tr>
</table>

The artifacts recovered from the positive shovel test at site 33TR0284 include one prehistoric debitage (flake) fragment and two historic glass fragments (see **Appendix B, Plate 7.2-03**). The prehistoric specimen has been thermally altered and is comprised of Burlington chert. The two historic artifacts are colorless and solarized, amethyst machine-made glass container fragments. The solarized, amethyst fragment has a partial embossed letter ".. T." Machine-made glass began post-1889 and solarized, amethyst glass has a production date range of ca. 1880s-1920s.

Review of the 1856 *Map of Trumbull County, Ohio*, 1874 *Atlas of Trumbull County*, 1899 *Atlas and Directory of Trumbull County, Ohio*, and *Warren, Ohio* 1908, 1959, 1970, 1979, 1984, and 1994 USGS topographic maps of this area do not depict any structures at or near the location of this findspot. The available aerial imagery of the site area suggests that this location has been an agricultural field since at least 1950.

Archaeological resource 33TR0284 is best characterized as an ephemeral subsurface deposit of a single prehistoric debitage specimen and two historic glass fragments identified within the plowzone (Ap) soil horizon of a single shovel test. Additional shovel tests excavated in close proximity to this findspot did not yield any additional cultural materials or evidence for subsurface features or deposits. This lack of features, structural remnants, or sub-plowzone archaeological deposits suggest that the research potential of site 33TR0284 has been exhausted by the current Phase I survey, as further research is unlikely to provide data significant towards a better understanding of regional prehistory or history. Site 33TR0284 is therefore recommended as not eligible for the NRHP, and no further investigations are recommended.

8. Conclusions and Recommendations

This report has detailed the Phase I archaeological survey conducted at proposed structure locations, temporary-use workspaces and access roads within the direct APE of the FirstEnergy Highland – Magellan 138kV Transmission Line Project in Trumbull County, Ohio. The limits of disturbance associated with the potential land requirements contained within the OHPO-approved APE considered as part of this survey encompass a total of 15.11 hectares (37.34 acres), a majority of which occurs within existing transmission line corridor or along existing gravel roads.

8.1 Phase I Archaeological Survey Summary

AECOM conducted the Phase I archaeological survey of the proposed FirstEnergy Highland – Magellan 138kV Transmission Line Project in Trumbull County in March 2021, respectively, through implementation of the OHPO guidelines and application of standard archaeological reconnaissance techniques including shovel testing and visual and pedestrian survey. A total of 723 SL were established within the Project, at the OHPO-recommended survey interval of 15 meters (49 feet). The archaeological survey involved the excavation of 139 (57-centimeter-diameter) shovel tests, supplemented by controlled pedestrian survey of cultivated agricultural fields at 5-meter (16-foot) intervals, along with visual inspection across the direct APE for the entirety of the Project.

The Phase I archaeological field survey involved the field reconnaissance of the entire 15.11-hectare (37.34-acre) Project APE and resulted in the identification of two archaeological resources, subsequently inventoried with the OHPO as sites 33TR0283 and 33TR0284. After further investigation and analysis of the recovered cultural material, both resources were determined to be associated with residences/ farmsteads which likely date from the late nineteenth/ early twentieth century and into the modern era. The two resources identified are recommended as not eligible for listing on the NRHP and no further fieldwork is recommended.

Concurrent with the Phase I archaeological field reconnaissance, TETLP prepared an Unanticipated Discovery Plan (UDP), designed for implementation in the event that cultural resources are encountered during ground-disturbing activities. This UDP is provided as **Appendix E** to this volume. In addition, TETLP will engage in further consultation with the OHPO should there be any changes in construction plans for the Project.

8.2 Research Questions

In addition to the analysis of the results obtained, these results can be applied to the research questions developed as part of the Research Design for the Project (detailed in **Chapter 2.1** of this volume). These questions are restated here, with an attempt made to address each based on the data collected by the AECOM Phase I survey. These questions include:

1. What types of prehistoric sites can be expected to be found within the direct APE of the Project, and, if identified, how do these prehistoric resources fit into the

archaeological record of prehistoric activity in Trumbull County? *The AECOM Phase I survey encountered a single prehistoric artifact within the limits of the Project, a lithic debitage specimen of indeterminate age or origin.*

2. Based on the distribution of prehistoric cultural materials collected during the Phase I Investigations, what conclusions can be drawn about site integrity? *As the field reconnaissance recovered just one prehistoric specimen, it is difficult to address this research question from the data collected as part of this study.*

3. The historic-era landscape of Trumbull County which contain the Project land requirements can be characterized as predominantly rural and impacted by the construction of roads, railroads, and various aboveground and underground utilities. Is there any evidence of historic-era activity within or in close proximity to margins of the Project APE? *The AECOM Phase I survey identified two historic-era archaeological resources, sites 33TR0283 and 33TR0284, both of which are recommended as not eligible for inclusion in the NRHP. Neither resource yielded evidence for a sustained historic occupation or structural foundations within the Project APE.*

4. Are there any archaeological resources present within the Project land requirements that are eligible, or potentially eligible, for the NRHP? *No eligible or potentially eligible archaeological resources were identified within the Project APE.*

8.3 Project Summary

The AECOM Phase I archaeological field reconnaissance detailed within volume examined a total of 15.11 hectares (37.34 acres) of land requirements associated with the FirstEnergy Highland – Magellan 138kV Transmission Line Project located in Trumbull County, Ohio. These field efforts identified one historic-era field dump (site 33TR0283) and one ephemeral multi-component resource (site 33TR0284) within the Project APE, both of which are recommended as not eligible for the NRHP. Based on the analysis of these findings, no further archaeological investigations are recommended for the land requirements detailed within this prior to the construction activities within the Project area.

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Appendix A Report Mapping

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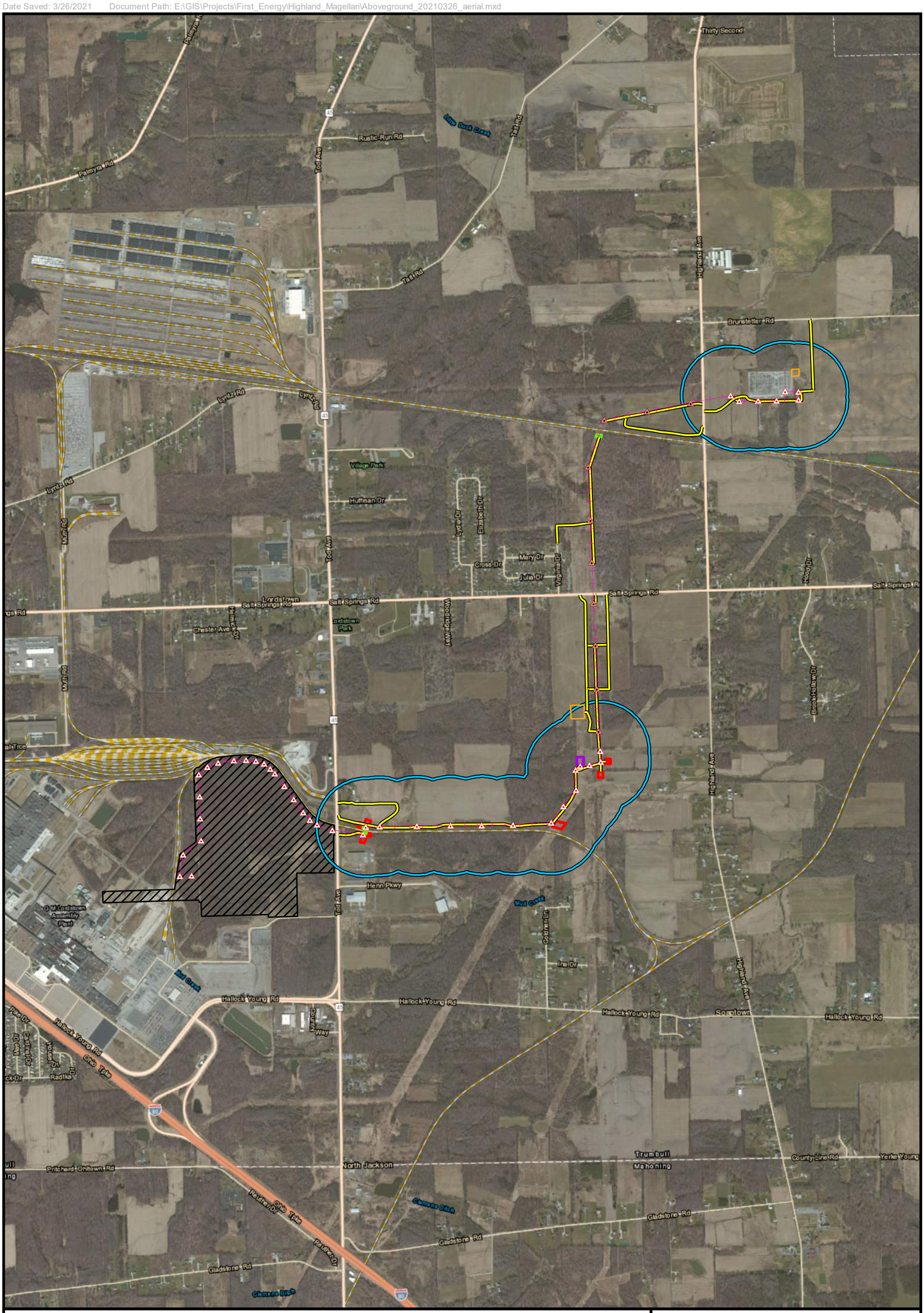

LEGEND

- Transmission Line
- Access Road
- Spoil Area
- Guard Location
- Pull Site
- Crane Pad
- GM Survey
- Indirect APE

Structure

- Existing
- Proposed

N

0 0.25 0.5 Miles

0 0.5 1 Kilometers

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Highland Magellan 138kV Transmission Line Project

Figure 1-1. Project Location in Trumbull County, Ohio

AECOM

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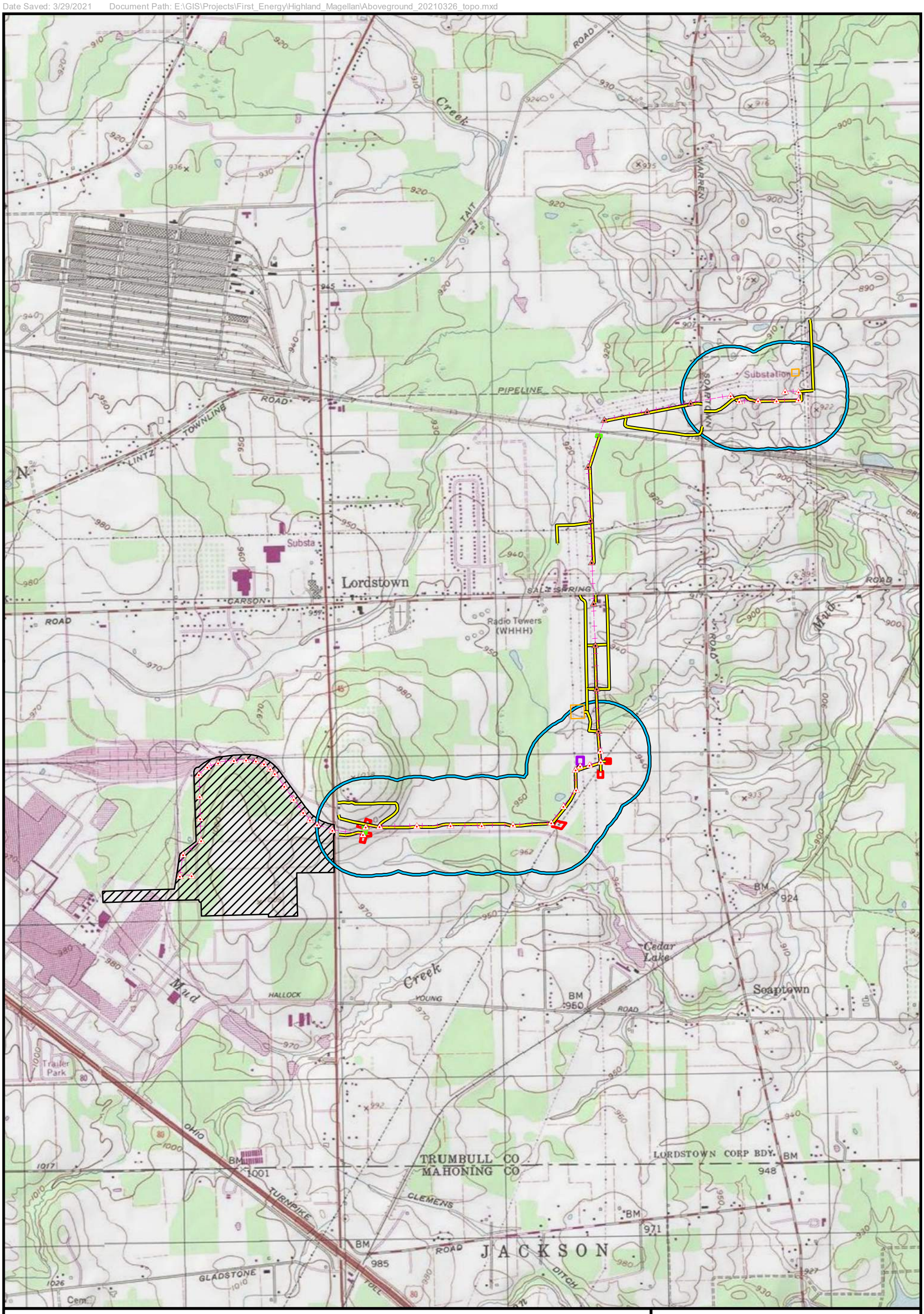

Highland Magellan 138kV Transmission Line Project

Figure 1-2. Project Location in Trumbull County, Ohio

AECOM

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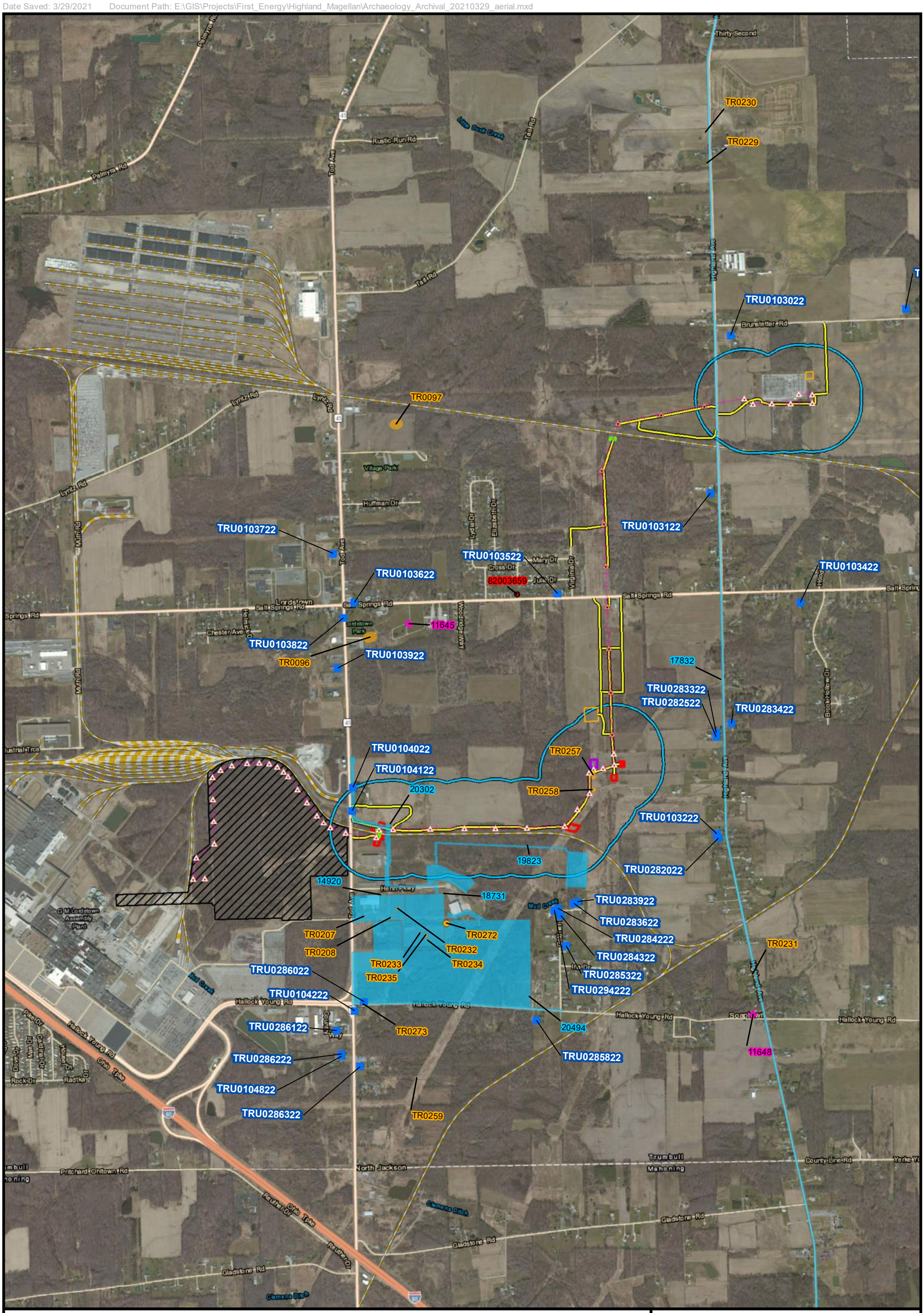


LEGEND

- Transmission Line
- Access Road
- Spoil Area
- Guard Location
- Pull Site
- Crane Pad
- Indirect APE
- GM Survey

Structure

- Existing
- Proposed

- NRHP
- OHI Resource
- Cemetery
- Previous Research
- Archaeological Site Boundary
- Archaeological Site Location

N

0 0.25 0.5 Miles

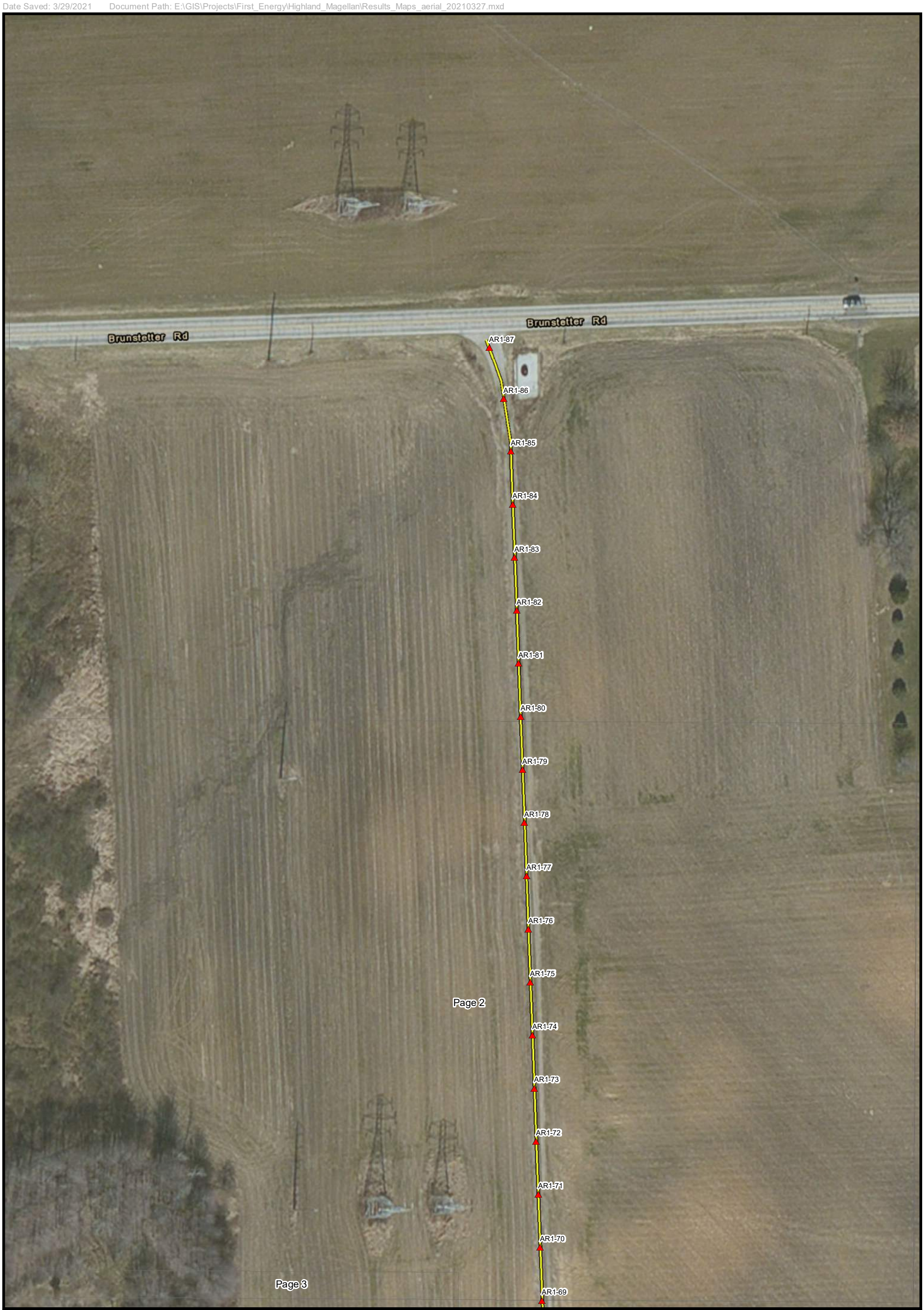
0 0.5 1 Kilometers

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Highland Magellan 138kV Transmission Line Project

Figure 2-1. Archival Research Results

AECOM



LEGEND

Access Road

SL Type

Pedestrian, Disturbed

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-1. Phase I Archaeological Survey Results

AECOM

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LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Spoil Area

Structure

- Proposed

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-2. Phase I Archaeological Survey Results

AECOM

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LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Spoil Area

Structure

- Proposed

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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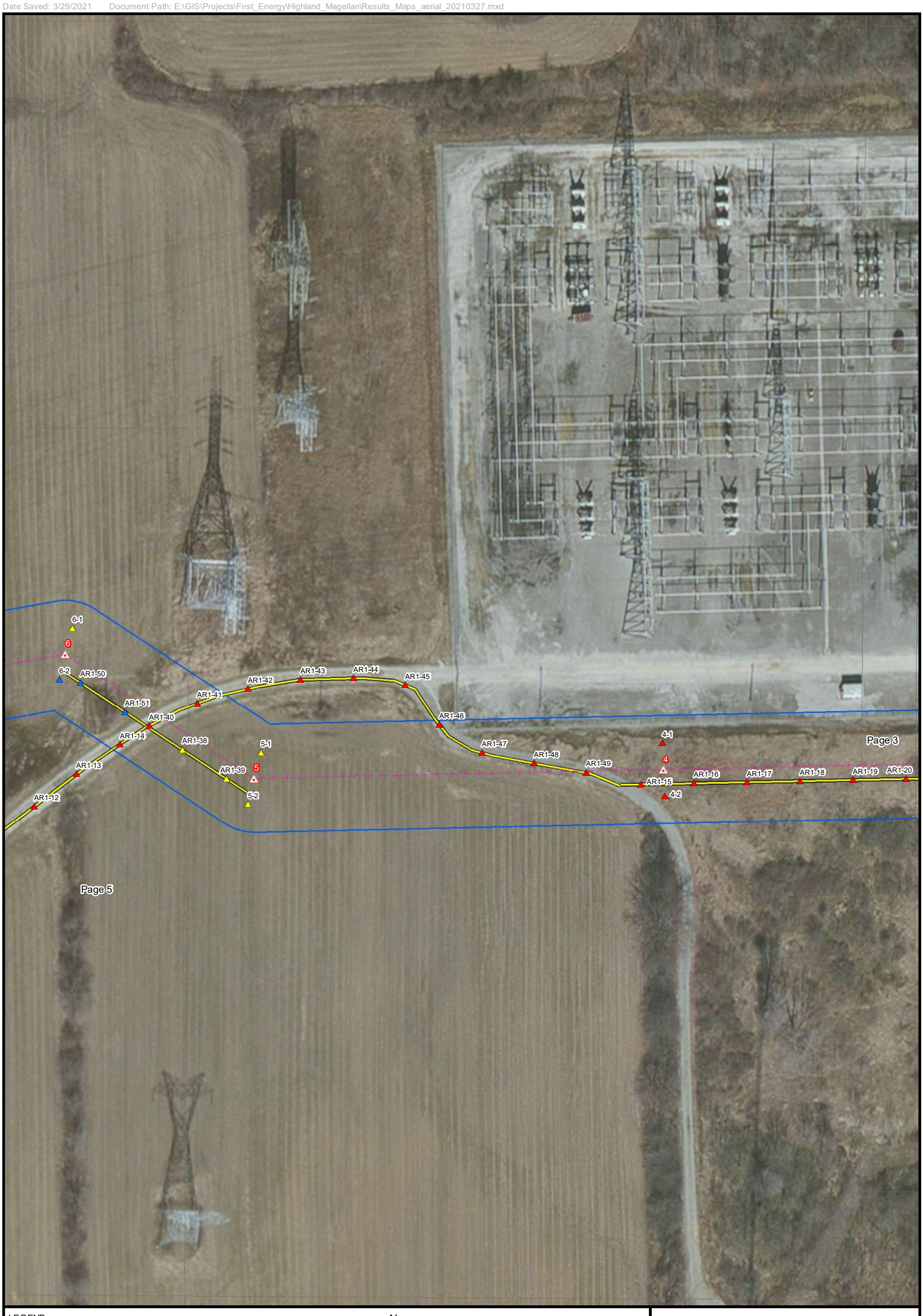
Highland Magellan 138kV Transmission Line Project

Figure 6-3. Phase I Archaeological Survey Results

AECOM



LEGEND

- Access Road
- Transmission Line
- 100ft ROW

Structure

- Proposed

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Pedestrian, Wet

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-4. Phase I Archaeological Survey Results

AECOM

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Highland Ave

6-1
6
6-2
AR1-50
AR1-51
AR1-40
AR1-38
AR1-14
AR1-13
AR1-12
AR1-11
AR1-10
AR1-9
AR1-8
AR1-7
AR1-6
AR1-5
AR1-4
AR1-3
AR1-2
AR1-1
AR2-4
AR2-5
AR2-6
AR3-48
AR3-47
AR3-46
AR3-45
AR3-44
AR3-43

Page 4

Page 6

LEGEND

Access Road
Transmission Line
100ft ROW

Structure

Proposed

SL Type

Pedestrian
Pedestrian, Disturbed
Pedestrian, Wet
Shovel Test

N

0 50 100
Feet
Meters
0 15 30

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-5. Phase I Archaeological Survey Results

AECOM

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LEGEND

Access Road

Transmission Line

100ft ROW

Structure

Existing

SL Type

Pedestrian, Disturbed

Shovel Test

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-6. Phase I Archaeological Survey Results

AECOM

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LEGEND

Access Road

Transmission Line

100ft ROW

Structure

Existing

SL Type

Pedestrian, Disturbed

Shovel Test

N

0 50 100

Feet

Meters

0 15 30

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-7. Phase I Archaeological Survey Results

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LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Guard Location

Structure

- Existing

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-8. Phase I Archaeological Survey Results

AECOM

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LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Archaeology Site

Structure

- Existing

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

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Highland Magellan 138kV Transmission Line Project

Figure 6-9. Phase I Archaeological Survey Results

AECOM

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LEGEND

- Access Road
- Transmission Line
- 100ft ROW

Structure

- Existing

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

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Highland Magellan 138kV Transmission Line Project

Figure 6-10. Phase I Archaeological Survey Results

AECOM

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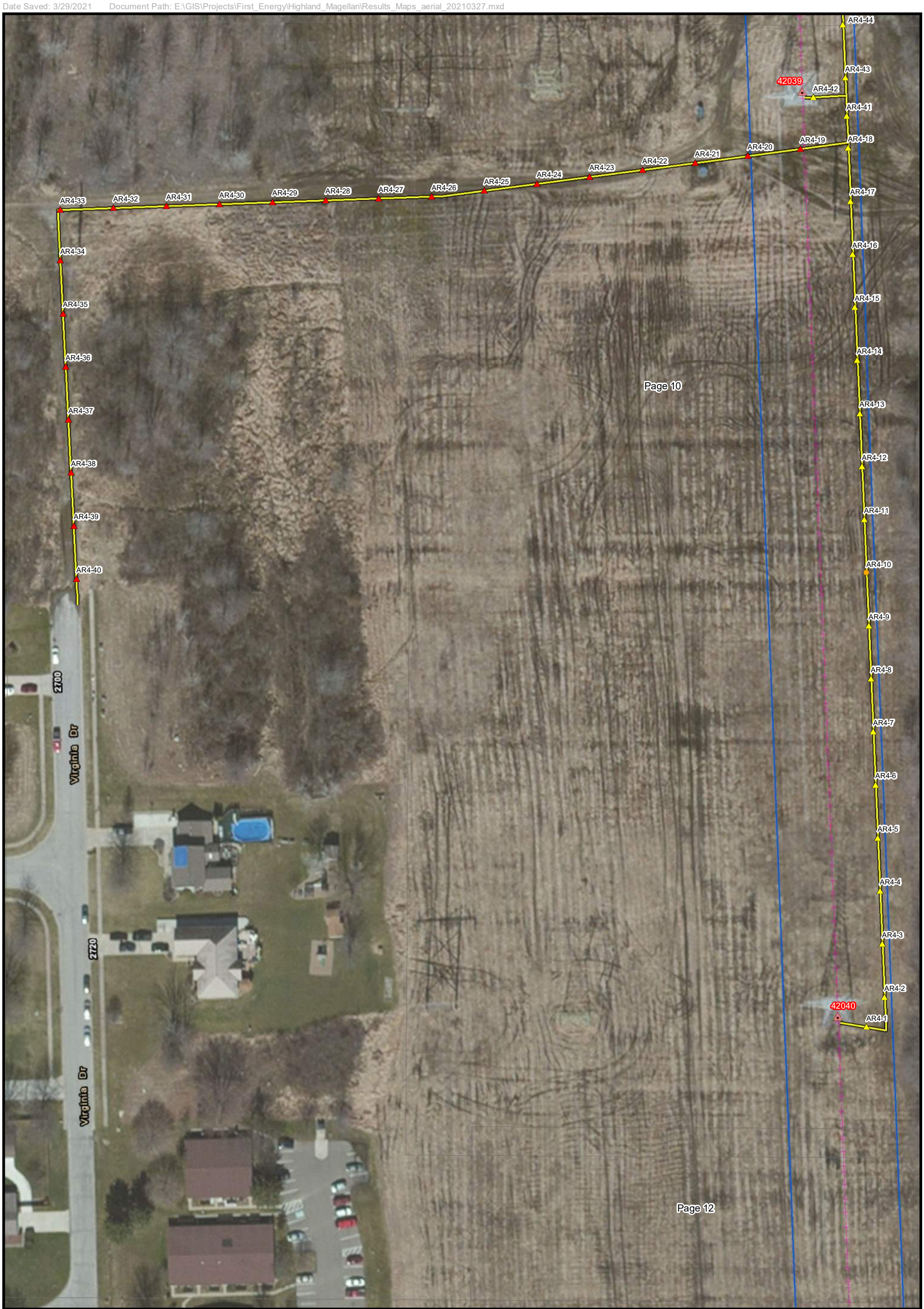

LEGEND

- Access Road
- Transmission Line
- 100ft ROW

Structure

- Existing

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

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Highland Magellan 138kV Transmission Line Project

Figure 6-11. Phase I Archaeological Survey Results

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Page 10

Page 11

900

Salt Springs Rd

Salt Springs Rd

AR6-163
AR6-164
AR6-165
AR6-166
AR6-167
AR6-168
AR6-169
AR6-170
AR6-171
AR6-172
AR6-173
AR6-174
AR6-175
AR6-176

AR5-4
AR5-3
AR5-2
AR5-1
42041

ARE-1
ARE-2
ARE-3
ARE-4
ARE-5
ARE-6
ARE-7
ARE-8
ARE-9
ARE-10
ARE-11
ARE-12
ARE-13

Page 13

LEGEND

Access Road

Transmission Line

100ft ROW

Structure

Existing

SL Type

Pedestrian, Disturbed

N

0 50 100

Feet

Meters

0 15 30

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Highland Magellan 138kV Transmission Line Project

Figure 6-12. Phase I Archaeological Survey Results

AECOM

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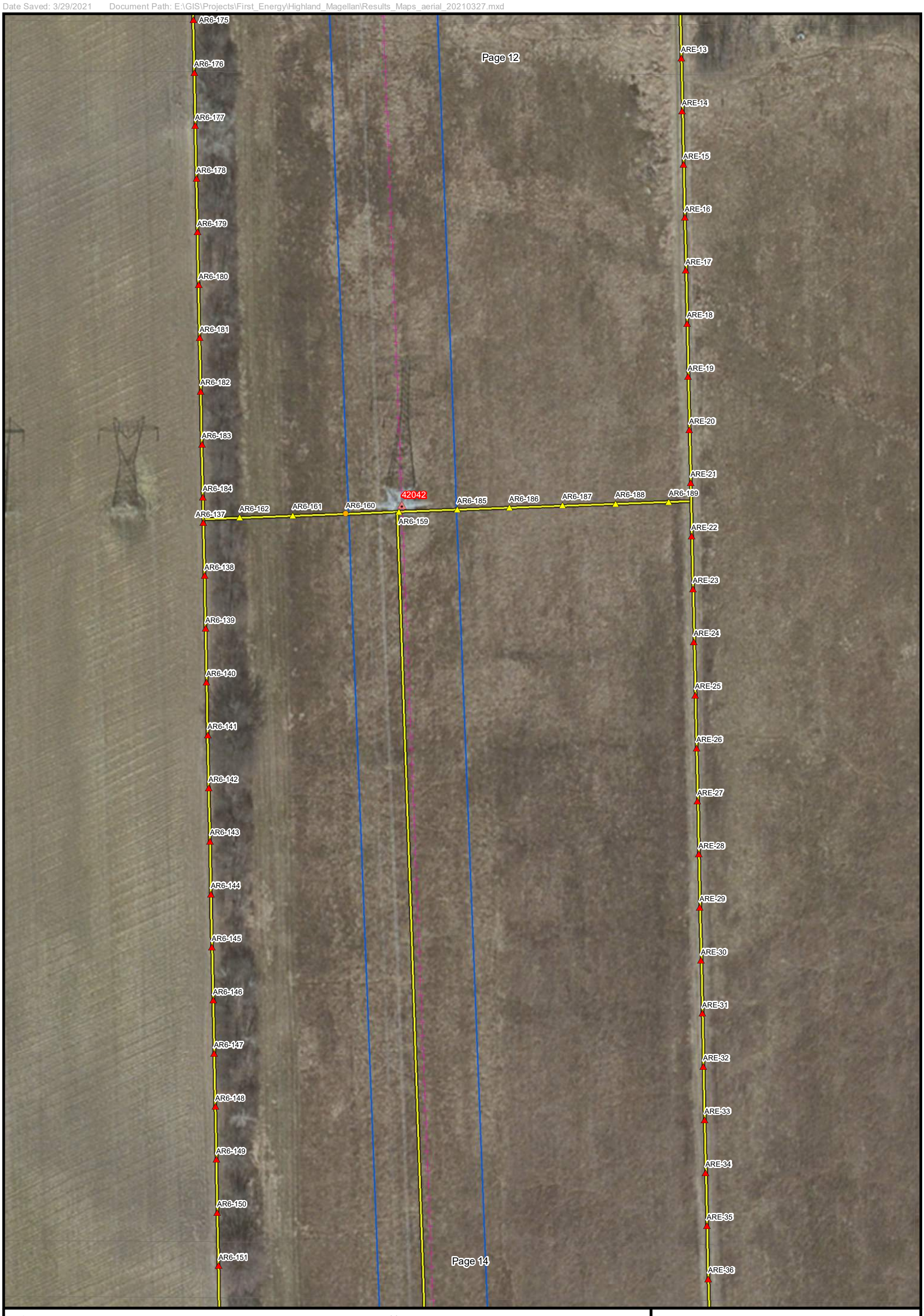

LEGEND

- Access Road
- Transmission Line
- 100ft ROW

Structure

- Existing

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

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Highland Magellan 138kV Transmission Line Project

Figure 6-13. Phase I Archaeological Survey Results

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Page 13

AR6-151
AR6-152
AR6-153
AR6-154
AR6-155
AR6-156
AR6-157
AR6-158
42043
ARE-44
ARE-43
ARE-42
ARE-41
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ARE-38
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AR6-117
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ARF-2
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ARF-4
ARF-5
ARF-6
ARF-7
ARF-8
ARF-9
AR-X1
ARF-10
ARF-11
ARF-12
ARF-13
ARF-14
ARF-15
ARF-16
ARF-17
ARF-18
ARF-19
ARF-20
ARF-21

SA2-F1 SA2-E1 SA2-D1 SA2-C1 SA2-B1 SA2-A1
SA2-E2 5m North
SA2-E2 10m East
SA2-F2 SA2-D2 SA2-C2 SA2-B2 SA2-A2
FE-HMTP-02
SA2-E2 10m West
SA2-F3 SA2-E3 SA2-D3 SA2-C3 SA2-B3 SA2-A3
SA2-F4 SA2-E4 SA2-D4 SA2-C4 SA2-B4 SA2-A4
SA2-F5 SA2-E5 SA2-D5 SA2-C5 SA2-B5 SA2-A5
SA2-F6 SA2-E6 SA2-D6 SA2-C6 SA2-B6 SA2-A6

Page 15

LEGEND

Access Road
Transmission Line
100ft ROW
Spoil Area
Archaeology Site

Structure
Existing

SL Type
Pedestrian
Pedestrian, Disturbed
Pedestrian, Wet
Shovel Test
Shovel Test, Disturbed
Shovel Test, Positive

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-14. Phase I Archaeological Survey Results

AECOM

Page 14

Page 16

LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Pull Site
- Crane Pad

Structure

- Proposed

SL Type

- Pedestrian
- Pedestrian, Wet
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

Highland Magellan 138kV Transmission Line Project

Figure 6-15. Phase I Archaeological Survey Results

AECOM

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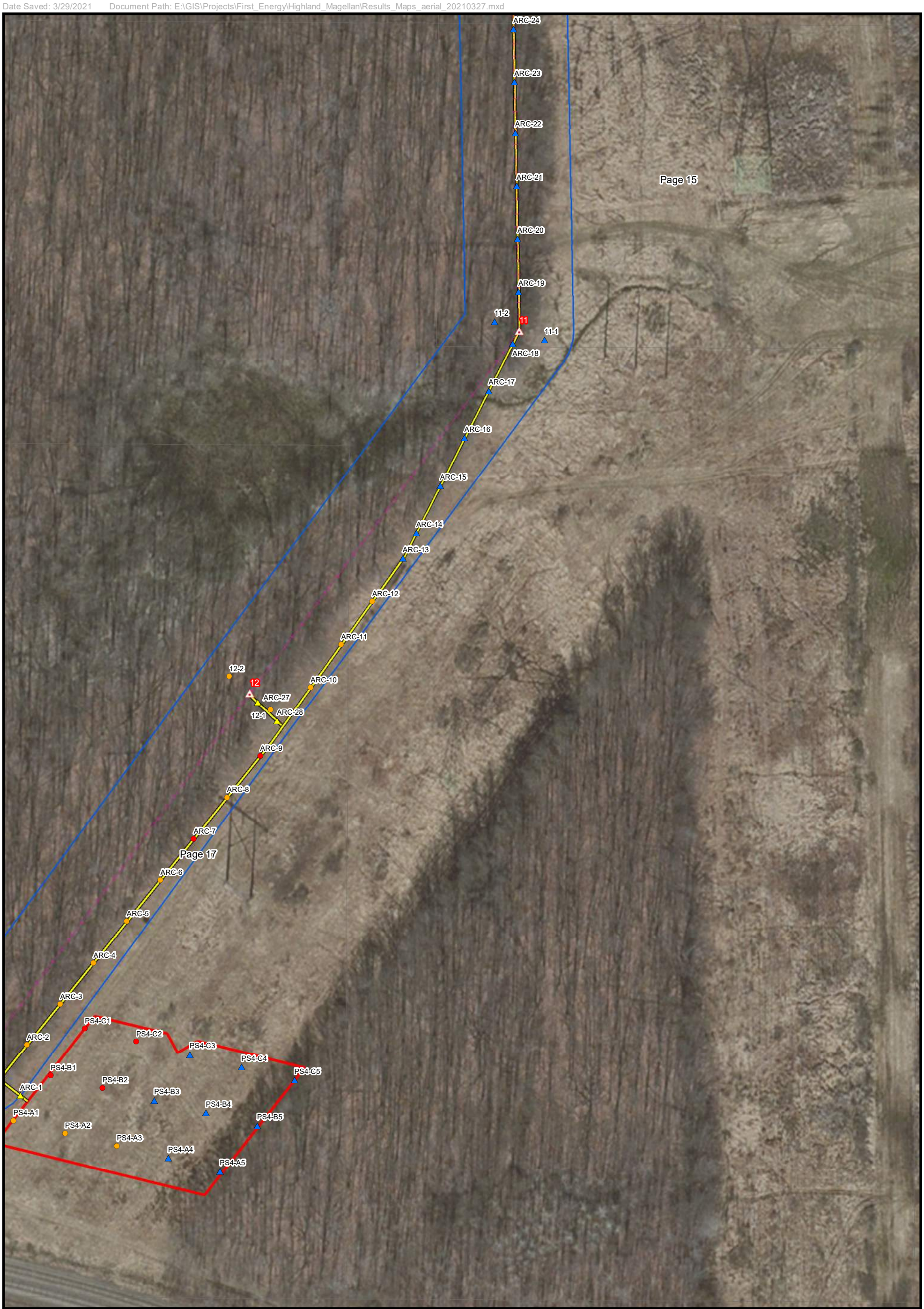

LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Pull Site

Structure

- Proposed

SL Type

- Pedestrian
- Pedestrian, Wet
- Shovel Test
- Shovel Test, Disturbed

N

0 50 100 Feet

0 15 30 Meters

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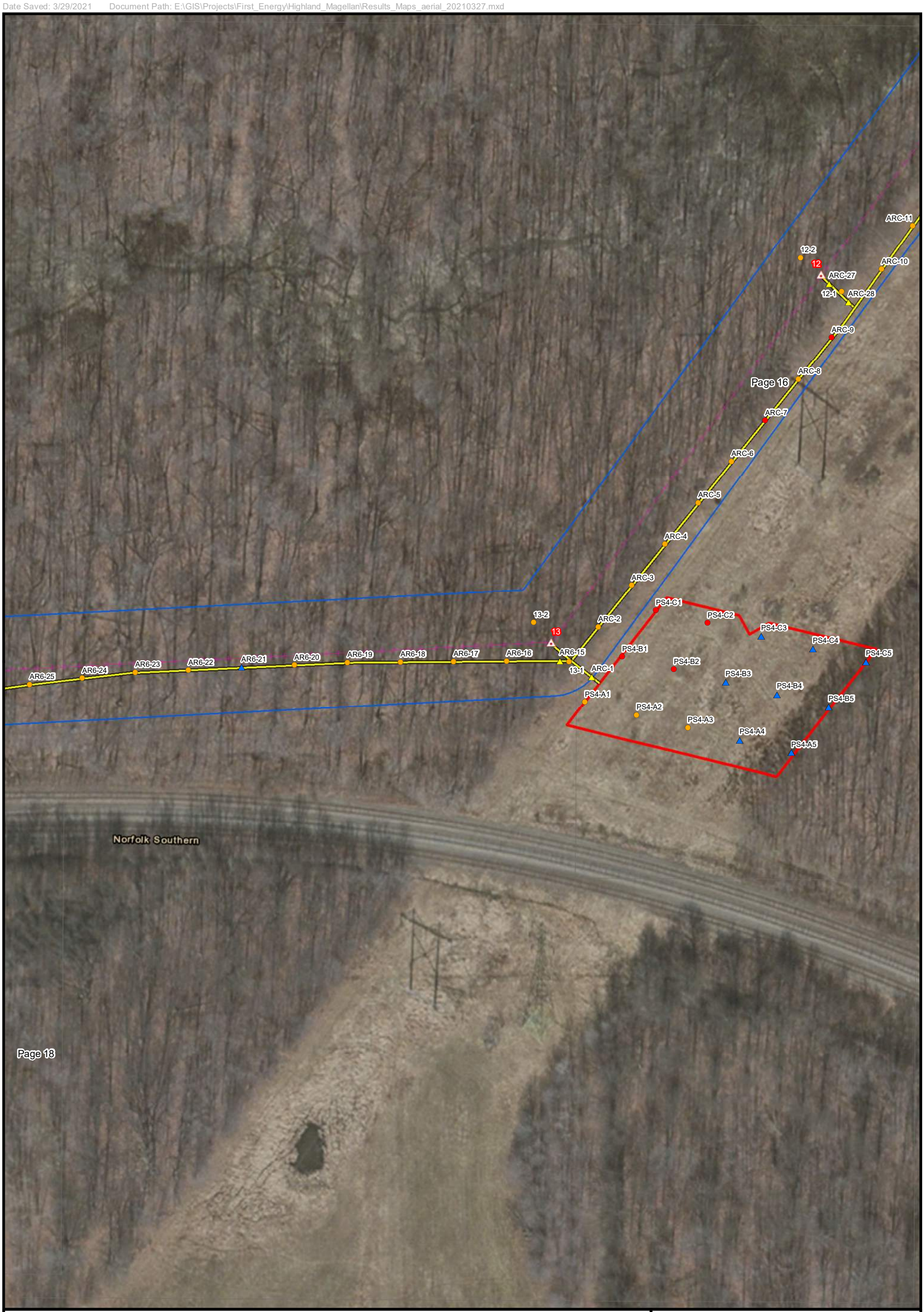
Highland Magellan 138kV Transmission Line Project

Figure 6-16. Phase I Archaeological Survey Results

AECOM



LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Pull Site

Structure

- Proposed

SL Type

- Pedestrian
- Pedestrian, Wet
- Shovel Test
- Shovel Test, Disturbed

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-17. Phase I Archaeological Survey Results

AECOM

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LEGEND

- Access Road
- Transmission Line
- 100ft ROW

Structure

- Proposed

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Pedestrian, Wet
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-18. Phase I Archaeological Survey Results

AECOM

AR6-58 16-2 AR6-56 AR6-55 AR6-54 AR6-53 AR6-52 AR6-51 AR6-50 AR6-49 AR6-48 AR6-47 AR6-46 AR6-45 15-2 AR6-44 AR6-43 AR6-42 AR6-41

AR6-57

16

16-1

15

15-1

LEGEND

Access Road

Transmission Line

100ft ROW

Structure

Proposed

SL Type

Pedestrian

Pedestrian, Disturbed

Pedestrian, Wet

Shovel Test

N

0 50 100

Feet

Meters

0 15 30

Highland Magellan 138kV Transmission Line Project

Figure 6-19. Phase I Archaeological Survey Results

AECOM

LEGEND

Access Road

Transmission Line

100ft ROW

Structure

Proposed

SL Type

Pedestrian

Pedestrian, Wet

N

0 50 100

Feet

Meters

0 15 30

Highland Magellan 138kV Transmission Line Project

Figure 6-20. Phase I Archaeological Survey Results

AECOM

ARG-25 ARG-24 ARG-23 ARG-22 ARG-21 ARG-20 ARG-19 ARG-18 ARG-17 ARG-16 ARG-15 ARG-14 ARG-13 ARG-12 ARG-11 ARG-10 ARG-9 ARG-8 ARG-7 ARG-6 ARG-5 ARG-4 ARG-3 ARG-2 ARG-1

18-2 18 18-1

WS2-E1 WS3-D2 WS3-D1

AR6-91 AR6-90 AR6-89 AR6-88 AR6-87 AR6-86 AR6-85 AR6-84 AR6-83 AR6-82 AR6-81 AR6-80 AR6-79 AR6-78 AR6-77 AR6-76 AR6-75 AR6-74

Norfolk Southern

LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Pull Site

Structure

- Proposed

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Pedestrian, Wet
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

Highland Magellan 138kV Transmission Line Project

Figure 6-21. Phase I Archaeological Survey Results

AECOM

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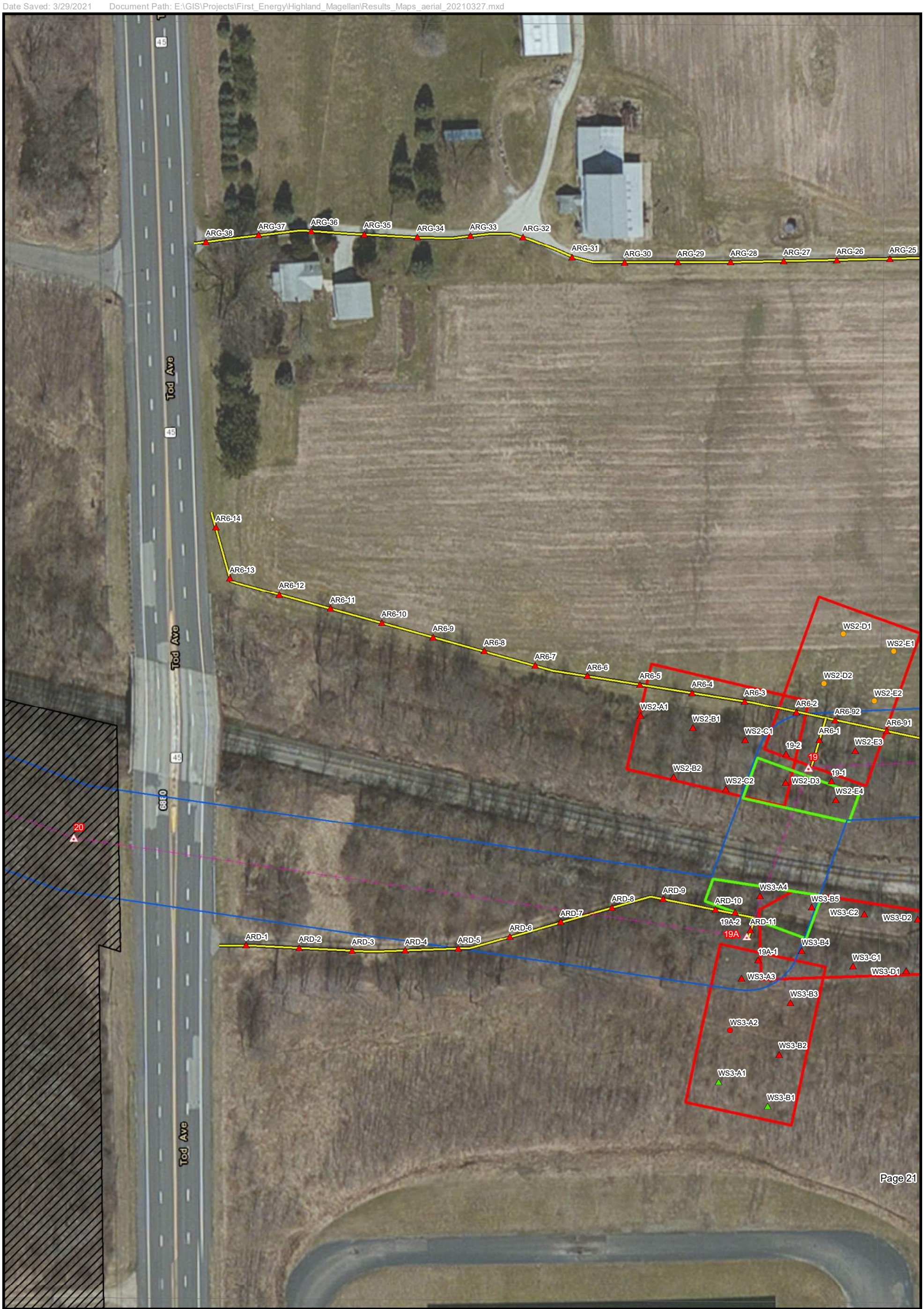

LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Pull Site
- Guard Location
- GM Survey

Structure

- Proposed

SL Type

- Pedestrian, Disturbed
- Pedestrian, Slope
- Shovel Test
- Shovel Test, Disturbed

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 6-22. Phase I Archaeological Survey Results

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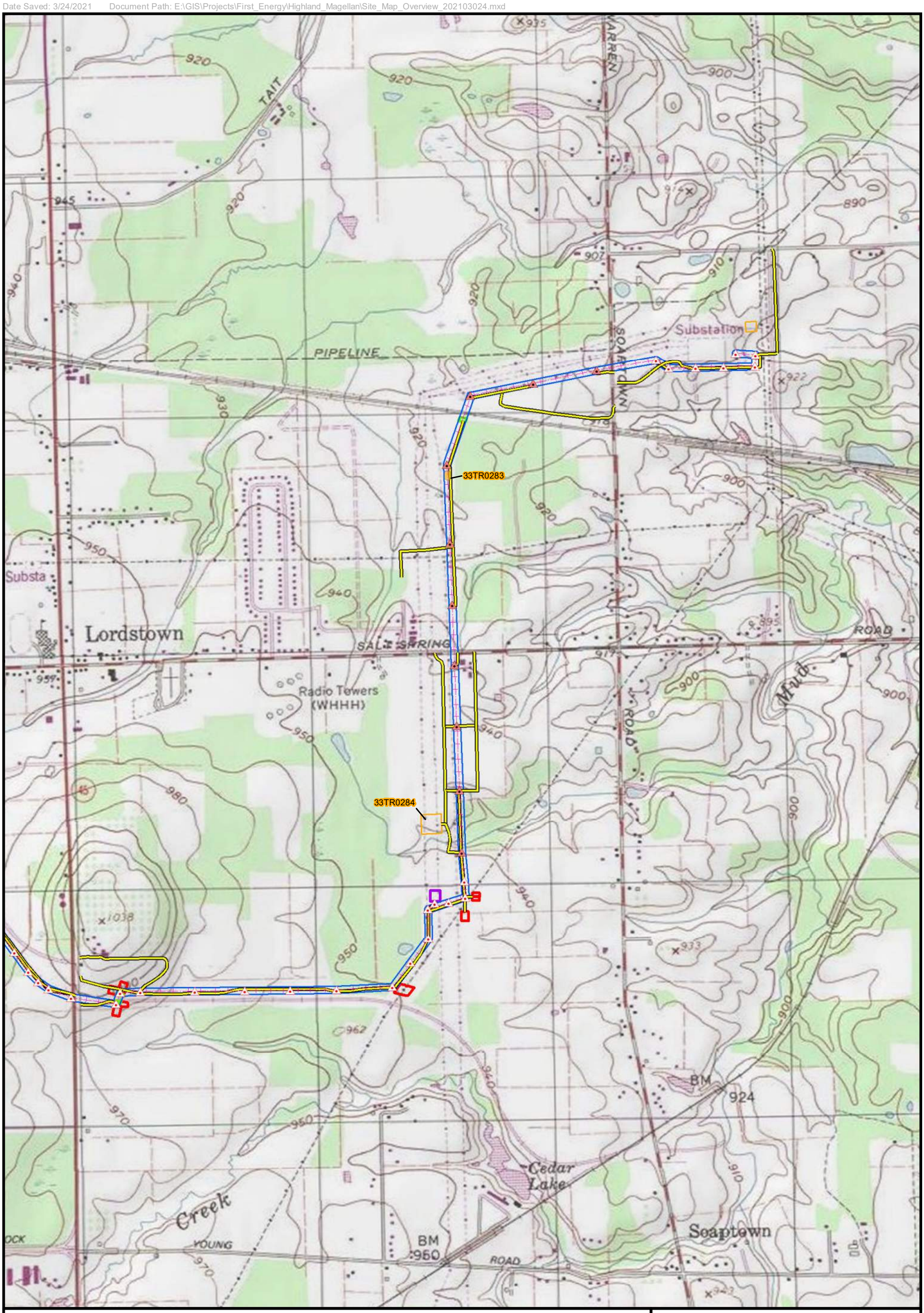

LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Spoil Area
- Pull Site
- Pull Site
- Guard Location
- Crane Pad
- Archaeology Site

Structure

- Existing
- Proposed

N

0 1,000 2,000 Feet

0 300 600 Meters

Highland Magellan 138kV Transmission Line Project

Figure 7-1. Project Overview Showing Archaeological Site Locations on USGS Mapping

AECOM

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LEGEND

- Access Road
- Transmission Line
- 100ft ROW
- Archaeology Site

Structure

- Existing

SL Type

- Pedestrian
- Pedestrian, Disturbed
- Shovel Test

N

0 50 100 Feet

0 15 30 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 7-2. Plan View of Site 33TR0283

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LEGEND

- Spoil Area
- Archaeology Site

SL Type

- Pedestrian
- Shovel Test
- Shovel Test, Positive

N

0 15 30 Feet

0 5 10 Meters

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
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Highland Magellan 138kV Transmission Line Project

Figure 7-3. Plan View of Site 33TR0284

AECOM

Appendix B Report Photography

Plate 6.1-01. Overview of Structure Location X, Facing North, from SL X-1.

Plate 6.1-02. Overview of Structure Location 1, Facing North, from SL 1-1.

Plate 6.1-03. Overview of Structure Location 2, Facing South, from SL 2-1.

Plate 6.1-04. Overview of Structure Location 3, Facing South, from SL 3-1.

Plate 6.1-05. Overview of Structure Location 4, Facing South, from SL 4-1.

Plate 6.1-06. Overview of Structure Location 5, Facing Southeast, from SL AR1-38.

Plate 6.1-07. Overview of Structure Location 6, Facing Northwest, from SL AR1-58.

Plate 6.1-08. Overview of Structure Location 7, Facing East, from SL 7-2.

Plate 6.1-09. Overview of Structure Location 8, Facing Southeast, from SL 8-2.

Plate 6.1-10. Overview of Structure Location 9, Facing South, from SL 9-2.

Plate 6.1-11. Overview of Structure Location 41519, Facing Southwest, from SL 41519-2.

Plate 6.1-12. Overview of Structure Location 10, Facing Southeast, from SL 10-2.

Plate 6.1-13. Overview of Structure Location 11, Facing West, from SL 11-1.

Plate 6.1-14. Overview of Structure Location 12, Facing Northwest, from SL 12-1.

Plate 6.1-15. Overview of Structure Location 13, Facing Northwest, from SL 13-1.

Plate 6.1-16. Overview of Structure Location 14, Facing South, from SL 14-2.

Plate 6.1-17. Overview of Structure Location 15, Facing North, from SL 15-1.

Plate 6.1-18. Overview of Structure Location 16, Facing South, from SL 16-2.

Plate 6.1-19. Overview of Structure Location 17, Facing South, from SL 17-2.

Plate 6.1-20. Overview of Structure Location 18, Facing North, from SL 18-1.

Plate 6.1-21. Overview of Structure Location 19, Facing South, from SL AR6-2.

Plate 6.1-22. Overview of Structure Location 19A, Facing South, from SL 19A-2.

Plate 6.2-01. Overview of Access Road 1, Facing South, from SL AR1-87.

Plate 6.2-02. Overview of Access Road 1, Facing South, from SL AR1-37.

Plate 6.2-03. Overview of Access Road 2, Facing West, from SL AR2-6.

Plate 6.2-04. Overview of Access Road 3, Facing East, from SL AR3-9.

Plate 6.2-05. Overview of Access Road 3, Facing South, from SL AR3-58.

Plate 6.2-06. Overview of Access Road 4, Facing North, from SL AR4-18.

Plate 6.2-07. Overview of Access Road 4, Facing East, from SL AR4-33.

Plate 6.2-08. Overview of Access Road 5, Facing South, from SL AR5-4.

Plate 6.2-09. Overview of Access Road 6, Facing West, from SL AR6-189.

Plate 6.2-10. Overview of Access Road 6, Facing South, from SL AR6-95.

Plate 6.2-11. Overview of Access Road A, Facing West, from SL ARA-2.

Plate 6.2-12. Overview of Access Road B, Facing South, from SL ARB-1.

Plate 6.2-13. Overview of Access Road C, Facing North, from SL ARC-18.

Plate 6.2-14. Overview of Access Road D, Facing West, from SL ARD-10.

Plate 6.2-15. Overview of Access Road E, Facing West, from SL ARE-40.

Plate 6.2-16. Overview of Access Road E, Facing North, from SL ARE-40.

Plate 6.2-17. Overview of Access Road F, Facing North, from SL ARF-9.

Plate 6.2-18. Overview of Access Road F, Facing West, from SL ARF-9.

Plate 6.2-19. Overview of Access Road G, Facing Northeast, from SL ARG-2.

Plate 6.2-20. Overview of Access Road G, Facing West, from SL ARG-14.

Plate 6.2-21. Overview of Access Road Y, Facing Southwest, from SL ARY-13.

Plate 6.3-01. Overview of Crane Pad Location, Facing North, from SL CP-B4.

Plate 6.3-02. Overview of Pull Site 1, Facing East, from SL PS1-A1.

Plate 6.3-03. Overview of Pull Site 2, Facing East, from SL PS2-A1.

Plate 6.3-04. Overview of Pull Site 3, Facing South, from SL PS3-A1.

Plate 6.3-05. Overview of Pull Site 4, Facing North, from SL PS4-A2.

Plate 6.3-06. Overview of Soil Area 1, Facing Southwest, from SL SA1-A1.

Plate 6.3-07. Overview of Soil Area 2, Facing West, from SL SA2-A1.

Plate 6.3-08. Overview of Workspace 1 Location, Facing West, from SL WS1-A1.

Plate 6.3-09. Overview of Workspace 2 Location, Facing North, from SL WS2-E3.

Plate 6.3-10. Overview of Workspace 3 Location, Facing North, from SL WS3-B2.

Plate 7.1-01. Overview of Site 33TR0283 from Centerline Just West of AR4-60, Facing North, from SL AR4-60.

Plate 7.1-02. Overview of Site 33TR0283 from Edge of Project Area, West of AR4-62, Facing West, from SL AR4-62.

Plate 7.1-03. Site 33TR0283, Pink Floral Ceramic Fragments.

Plate 7.1-04. Site 33TR0283, Stoneware Rim Fragments.

Plate 7.1-05. Site 33TR0283, White-Bodied Tinted Colored Glaze Ceramic Fragments.

Plate 7.1-06. Site 33TR0283, Coarse Ceramic Drainage Pipe Fragment.

Plate 7.1-07. Site 33TR0283, White-Bodied Serving Dish Ceramic Fragment.

Plate 7.2-01. Overview of Site 33TR0284, Facing North, from SL SA2-E2.

Plate 7.2-02. Overview of Site 33TR0284, Facing West, from SL SA2-E2.

Plate 7.2-03. Site 33TR0284, Artifact Assemblage.

Appendix C Agency Correspondence

In reply refer to:
2021-TRU-50335

February 5, 2021

Christopher G. Leary
AECOM
525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

RE: Section 106 Review-Desktop Review for Highland-Magellan 138 kV Transmission Line Project, Trumbull County, Ohio

Dear Mr. Leary:

This letter is in response to correspondence received on January 7, 2021 regarding the proposed 4.48-mile long Highland-Magellan 138 kV Transmission Line Project near Lordstown, Trumbull, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The proposed project will involve the construction of 4.48-miles of new 138 kV transmission line between the existing Highland Substation and the proposed Magellan Substation. The following comments pertain to the *Phase I Cultural Resources Desktop Review for the Highland – Magellan 138kV Transmission Line Project, Trumbull County, Ohio* by AECOM Technical Services, Inc. (2020).

According to the report, the majority of the proposed direct Area of Potential Effect (APE) has not been systematically surveyed for below-ground cultural resources. In order to determine if the current project will affect undocumented archaeological sites, the SHPO agrees that an archaeological survey for the entire APE, including all temporary workspaces, undeveloped access roads, and pull site work areas that are not within a previously surveyed area (e.g., GM Survey area) per the SHPO guidelines be conducted. Furthermore, it is our understanding that an architectural history assessment will be conducted within 1,000 feet from each of the 39 new structure locations proposed for installation. Our office agrees that the cultural resources investigations proposed for aboveground structures is a suitable method to evaluate the effects of the Highland-Magellan 138kV Transmission Line Project and inform appropriate mitigation measures if necessary. We look forward to continuing consultation regarding this Project. If you have any questions, please contact me by e-mail at sbiehl@ohiohistory.org or Joy Williams at jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Stephen M. Biehl, Project Reviews Coordinator (archaeology)
Resource Protection and Review
State Historic Preservation Office

RPR Serial No. 1086834

"Please be advised that this is a Section 106 decision. This review decision may not extend to other SHPO programs."

Appendix D Field Forms

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/08/21

Segment
Transect
Location Transmission Towers

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
1-1	E	15m interval GPS	Rolling hills, cleared brush adjacent to ag field	I II	0-31cm 31-41cm	10YR 4/3 SiLo 10YR 6/6 SiClLo	∅	
1-2	P/D	" "	" " Rutted	–	–	–	∅	
2-1	E	" "	Rolling hills ag field (grass)	I II	0-31cm 31-41cm	10YR 4/3 SiLo 7.5YR 5/6 mottled with 10YR 5/3 SiClLo	∅	
2-2	P	" "	" "	–	–	–	∅	
x-1 x-2	P/D	" "	Existing substation facility	–	–	–	∅	
3-1 3-2	P/D	" "	Relatively flat, cleared brush, buried utilities	–	–	–	∅	
4-1 4-2	P/D	" "	Relatively flat, buried utilities gravel road	–	–	–	∅	
5-1 5-2	P	" "	Relatively flat, ag. field (corn) >80% visibility	–	–	–	∅	
6-1	P	" "	" "	–	–	–	∅	
6-2	P/W	" "	Relatively flat grass, rutted, standing water	–	–	–	∅	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/09/21

Segment
Transect
Location Transmission Towers

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
7-2	E	15m interval GPS	Relatively flat ag. field (corn)	I II	0-20cm 20-30cm	10YR 4/3 SiClLo 10YR 6/2 SiClLo with iron oxide	Ø	
7-1	E	" "	" "	I II	0-29cm 29-39cm	10YR 4/3 SiClLo 10YR 6/2 mottled with 10YR 5/6 SiClLo	Ø	
12-2	E	" "	Relatively flat, wooded	I II	0-17cm 17-27cm	10YR 4/2 SiLo 10YR 6/2 mottled with 10YR 6/6 SiClLo	Ø	
12-1	E	" "	Relatively flat, edge of wood line adjacent to corridor	I II	0-11cm 11-21cm	Same As Above	Ø	
8-1 + 8-2	P/W	" "	Wetlands	—	—	—	Ø	Delineated Wetlands, Water @ Surface
9-1 + 9-2	P/W	" "		—	—	—	Ø	
10-1 + 10-2	P/W	" "		—	—	—	Ø	
11519-1 + 11519-2	P/W	" "		—	—	—	Ø	
11-1 + 11-2	P/W	" "		—	—	—	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number FirstEnergy Highland Magellan
Recorder AR
Date 03/10/21

Segment
Transect
Location Transmission Tower

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
13-1	E	15m interval GPS	Relatively flat edge of wood line adjacent to corridor	I II	0-26cm 26-36cm	10YR 4/2 SiLo 10YR 6/4 SiClLo	Ø	
13-2	E	" "	Relatively flat, wooded	I II	0-21cm 21-31cm	10YR 4/2 SiLo 10YR 6/4 SiClLo	Ø	
15-1	E	" "	" "	I II	0-17cm 17-30cm	10YR 4/2 SiLo 10YR 5/3 mottled with 10YR 6/6 SiClLo	Ø	Subsoil contained large amount of moisture
15-2	E	" "	" "	I II	0-24cm 24-34cm	Same As Above	Ø	
16-1	P/W	" "	Relatively flat grasses	—	—	—	Ø	Standing water
16-2	E	" "	Relatively flat ag. field (corn)	I II	0-17cm 17-27cm	10YR 4/2 SiLo 10YR 6/4 SiClLo	Ø	
17-1	P/W	" "	Relatively flat, wetland adjacent to ag. field	—	—	—	Ø	
17-2	P	" "	Relatively flat ag. field (corn)	—	—	—	Ø	>50% visibility

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number FE Highland Magellan
Recorder JStroik
Date 3/10/2021

Segment Tower 141, 18
Transect 14, 18
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
14-1	E	15m	Woods flat	I II	0-22 22-32	10YR 3/2 silo 10YR 6/2 silo	Ø	
14-2	E	15m	"	I II	0-14 14-35	10YR 4/2 silo 10YR 6/2 silo w/ FeOx	Ø	
18-1	E	15m	grass/shrubs Hillside	I II	0-28 28-40	10YR 3/3 silo 10YR 6/3 silo	Ø	
18-2	E	15m	" "	I II	0-20 20-40	10YR 3/3 10YR 6/3 silo w/ rocks 10%	Ø	
19-1 + 19-2	P/D	15L	Wooded brk on side of Railroad	—	—	—	Ø	
19A-1 + 19A-2	P/D	15L	" "	—	—	—	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Page__ of ____

Sample Loci (SL) Form

Project Name and Number FE Magellan
Recorder J Strok
Date 3/8/2021

Segment
Transect AR1
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR1-33	E	15m	hayfield rolling	I II	0-21 21-31	10YR 4/3 silt 10YR 5/2 + 7.5YR 5/6 silt mottled	Ø	
AR1-35	E	15m	" "	I II	0-27 27-37	" "	Ø	
AR1-37	E	15m	hayfield drainage floodplain	I II	0-31 31-41	10YR 4/2 silt w/ FeOx+Mg 2.5Y 5/2 silt w/ FeOx+Mg	Ø	
AR1-53	P	5m	" "	—	—	—	Ø	50% vis
AR1-54	E	15m	" "	I II	0-46 46-56	10YR 4/2 silt w/ FeOx+Mg 10YR 5/3 silt w/ 10% glacial till	Ø	
AR1-55	E	15m	" "	I II	0-46 46-56	" "	Ø	
AR1-57	E	15m	" "	I II	0-48 48-58	" "	Ø	
AR1-38-37	P	15m	" "	—	—	—	Ø	
AR1-50-51	P/W	15m	" "	—	—	—	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/08/21

Segment
Transect
Location Access Road 1

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR1-32	E	15m interval GPS	Rolling hills ag. field (grass)	I II	0-24cm 24-34cm	10YR 4/3 SiLo 7.5YR 5/6 mottled with 10YR 5/3 SiCLo	Ø	
AR1-34	E	" "	" "	I II	0-26cm 26-36cm	Same As Above	Ø	
AR1-36	E	" "	" "	I II	0-28cm 28-38cm	10YR 4/3 SiLo 7.5YR 5/6 SiCLo	Ø	
AR1-52	E	" "	" "	I II III	0-9cm 9-30cm 30-40cm	10YR 4/2 SiLo 10YR 4/2 heavy iron oxide staining SiLo 7.5YR 5/6 mottled with 10YR 5/3 SiCLo some Fe_2O_3	Ø	
AR1-56	E	" "	" "	I II III	0-25cm 25-39cm 39-49cm	10YR 4/2 SiLo 10YR 4/2 with iron oxide SiLo 10YR 6/6 SiCLo	Ø	
AR1-58-87	P/D	" "	Existing Gravel/Dirt Road	—	—	—	Ø	
AR1-15-31	P/D	" "	Graded, gravel area South of Substation	—	—	—	Ø	Buried Utilities
AR1-40-49	P/D	" "	Gravel Road	—	—	—	Ø	
AR1-1-14	P/D	" "	" "	—	—	—	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number FE Magellan
Recorder VStrait
Date 3/8/2021

Segment
Transect AR2
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR2-6	P/D	15m	Road/ditch	—	—	—	—	Highland Ave
AR2-5	E	15m	ag field wheat harvested rolling	I II	0-33 33-43	10YR 3/2 s/l o w/ 5% rocks 10YR 5/3 s/l o	Ø	
AR2-3	E	15m	" "	I	0-51	10YR 3/2 c l lo FeOx water table at 50cm	Ø	wetland soils

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/08/21

Segment
Transect
Location Access Road 2

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARZ-4	E	15m interval GPS	Rolling hills, edge of ag. field	I II III	0-24cm 24-37cm 37-47cm	10YR 4/2 SiLo 10YR 5/2 SiCiLo 10YR 3/1 CiLo	∅	
ARZ-1	P/D	" "	Transmission tower	–	–	–	∅	
ARZ-2	E	" "	Rolling hills, edge of ag. field	I II	0-35cm 35cm-45cm	10YR 4/2 SiLo 10YR 5/6 mottled with 10YR 5/2 SiCiLo	∅	

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****P=** Prehistoric, **H=**Historic, **M=** Modern

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Sample Loci (SL) Form

Project Name and Number FE Magellan
Recorder JStroik
Date 3/8/2021

Segment
Transect AR3
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR3-57	E	15m	winter wheat harvested/fallow rolling to flat	I II	0-21 21-35	10YR4/1 sil. 10YR6/2 sicl/lo w/FeOx + Mg	Ø	old wetland
AR3-56	E	15m	" "	I II	0-30 30-45	" "	Ø	"
AR3-53	E	15m	" "	I II	0-25 25-40	10YR4/1 sil/o w/FeOx 10YR6/2 cl/o w/FeOx	Ø	"
AR3-50	E	15m	" "	I II	0-23 23-35	" "	Ø	"
AR3-8	E	15m	" "	I II	0-22 22-32	10YR4/1 sil/o w/FeOx 10YR6/3 sil/o w/FeOx	◯	"
AR3-4	E	15m	" "	I II III	0-21 21-28 28-38	10YR4/1 sil 10YR4/1 sil/o mottle w/10YR6/3 sil/o 10YR6/3 sil/o	Ø	

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/08/21

Segment _____
Transect _____
Location Access Road 3

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR3-58	E	15m interval GPS	Relatively flat ag. field (glass)	I II III	0-20cm 20-32cm 32-42cm	10YR 4/2 SiLo 10YR 3/1 SiClLo with iron oxide staining 10YR 6/6 mottled with 10YR 6/2 iron oxide	Ø cllo	
AR3-55	E	" "	" "	I II	0-29cm 29-40cm	10YR 4/3 SiLo 10YR 6/6 mottled with 10YR 3/1 + 6/2 ClLo Fe_2O_3	Ø	
AR3-52	E	" "	" "	I II	0-25cm 25-35cm	10YR 4/1 SiLo 10YR 6/2 mottled with 10YR 6/6 SiClLo Fe_2O_3	Ø	
AR3-49	E	" "	" "	I II	0-23cm 23-33cm	10YR 4/2 SiLo 10YR 6/2 mottled with 10YR 6/6 SiClLo	Ø	
AR3-6	E	" "	" "	I II	0-22cm 22-32cm	10YR 4/1 mottled with 10YR 6/4 SiLo Fe_2O_3 10YR 6/4 with iron oxide staining SiClLo	Ø	
AR3-3	E	" "	Slightly undulating terrain, ag. field	I II	0-18cm 18-28cm	10YR 4/2 SiLo 10YR 6/6 mottled with 10YR 6/2 SiClLo Fe_2O_3	Ø	

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magella
Recorder K Johnson
Date 3/8/2021

Segment
Transect
Location Access Rd 3

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR3-54	E	15L/GPS	Mostly Flat Fallow grass field	I(Ap) II(B)	0-27cm 27-40cm	10YR 4/3 SiCl 10YR 5/6 mottled w/ 10YR 3/1, 5/2 Cl	Ø	
AR3-51	E			I(Ap) II(Btg)	0-28cm 28-40cm	10YR 4/1 SiCl w/ iron mottles 10YR 4/2, 5/6 SiCl	Ø	
AR3-9	E		Mostly Flat Harvested Soy, grass	I(Ap) II(B)	0-13cm 13-25cm	10YR 4/1 SiL 10YR 4/2, 5/6 SiCl	Ø	
AR3-7	E			I(Ap) II(B)	0-21cm 21-35cm	" "	Ø	
AR3-5	E			I(Ap) II(B)	0-19cm 19-30cm	10YR 4/3 SiL 10YR 6/4 SiL	Ø	
AR3-2	E			I(Ap) II(B)	0-22cm 22-35cm	10YR 4/3 mottled w/ 10YR 3/2, 5/6, 6/1 SiCl 10YR 6/4 SiCl	Ø	Cl-ly disturbed Ap
AR3-1	P/D		Existing Transmission Tower	—	—	—	Ø	
AR3-10-48	P/D		Existing Gravel Two-Track Road	—	—	—	Ø	

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/08/21

Segment
Transect
Location Access Road 4

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR4-65	P/D	15m interval GPS	Transmission tower	—	—	—	Ø	
AR4-64	E	" "	Slightly undulating ag. field	I II	0-22cm 22-32cm	10YR 4/3 SiLo 10YR 6/4 mottled with 10YR 6/6 SiCLo	Ø	
AR4-62	E	" "	" "	I II	0-15cm 15-25cm	Same As Above	Ø	
AR4-60	E	" "	" "	I II	0-19cm 19-29cm	10YR 4/3 SiLo 10YR 6/4 mottled with 10YR 5/2, 6/6 SiCLo	Ø	
AR4-16	E	" "	" "	I II	0-27cm 27-37cm	Same As Above	Ø	
AR4-41-59	P	" "	" "	—	—	—	Ø	50% Surface visibility
AR4-1-9	P	" "	" "	—	—	—	Ø	↓
AR4-11-18	P	" "	" "	—	—	—	Ø	
AR4 19-40	P/D	" "	Gravel/ Dirt Road	—	—	—	Ø	

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Sample Loci (SL) Form

Project Name and Number FE Magellan
Recorder J Stroik
Date 3/8/2021

Segment
Transect AR4
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR4 -63	E	15m	harvested soy rolling to flat	I II	0-14 14-25	10YR 3/2 silo 10YR 6/4 silt	Ø	
AR4 -61	E	15m	" "	I II	0-18 18-28	" "	Ø	

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P= Prehistoric, **H=Historic, **M=** Modern

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder R. Johnson
Date 3/9/2021 "

Segment_____
Transect_____
Location Access Road 5

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARS-1-4	P/D	15m/GPS	Gravel pad, access road	–	—	—	∅	

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Sample Loci (SL) Form

Project Name and Number FE Highland to Magellan
Recorder J Stroik
Date 3/10/2021

Segment ARG
Transect ARG
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARG-16	E	15m	Woods rolling to flat	I II	0-10 10-29	10 YR 3/2 silo 10 YR 6/3 s.l.	Ø	
ARG-19	E	15m	"	I II	0-14 14-28	" "	Ø	
ARG-24	E	15m	"	I II	0-10 10-35	10 YR 2/2 s.l. 10 YR 6/3 s.l.	Ø	
ARG-27	E	15m	"	I	0-13 root impass	10 YR 3/3 s.l.	Ø	
ARG-32,33	P/W	15m	grass rolling to flat	—	—	—	—	standing water
ARG-35	E	15m	harvested corn rolling to flat	I II	0-25 25-35	10 YR 4/3 s.l. 10 YR 6/3 s.l. w/Fe Ox	Ø	
ARG-37	E	15m	" "	I II	0-30 30-45	" "	Ø	
ARG-39	E	15m	" "	I II	0-28 28-40	10 YR 3/3 s.l. 10 YR 6/2 s.l. w/Fe Ox	Ø	
ARG-40	P/W	15m	" "	—	—	—	—	standing water
ARG-43	E	15m	Woods flat	I II	0-15 15-35	10 YR 3/2 s.l. 10 YR 6/2 s.l. w/Fe Ox	Ø	

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder K. Johnson
Date 3/16/2021

Segment _____
Transect _____
Location Access Road 6

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARG-17	E	15m/GPS	Wooded (Oak) mostly flat	I(A) II(B)	0-18cm 18-32cm	10YR 4/3 SiLo 10YR5/4 SiCl Lo	∅	
ARG-20	E			I(A) II(B)	0-20cm 20-35cm	10YR4/2 SiLo 10YR6/4 SiCl Lo	∅	
ARG-23	E			I(A) II(B)	0-17cm 17-32cm	10YR4/2 SiLo 10YR6/4 mottled w/ 5/6 SiCl Lo	∅	
ARG-25	E			I(A) II(B)	0-18cm 18-32cm	" "	∅	
ARG-28	E			I(A) II(B)	0-20cm 20-30cm	10YR4/2 SiLo 10YR6/4 SiCl Lo	∅	
ARG-42	E			I(A) II(B)	0-21cm 21-35cm	10YR4/3 SiLo 10YR6/4 Si Cl Lo (wet)	∅	
ARG-46	E			I(A) II(B)	0-17cm 17-32cm	10YR4/3 SiLo 10YR5/4 SiCl Lo	∅	
ARG-50	E			I(A) II(B)	0-18cm 18-30cm	10YR4/2 SiLo 10YR5/1 SiCl Lo (wet)	∅	Water @ strat change
ARG-53-54	P			—	—	—	∅	Area covered by deadfall
ARG-55-56	P/D			—	—	—	∅	Deadfall, large pole piles

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/10/21

Segment
Transect
Location Access Road 6

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARG-18	E	15m interval GPS	Relatively flat, wooded	I II	0-22cm 22-32cm	10YR 4/2 SiLo 10YR 6/4 SiClLo	Ø	
ARG-21	P/W	" "	standing water	-	-	-	Ø	
ARG-22	E	" "	Relatively flat, wooded	I II	0-19cm 19-29cm	10YR 4/2 SiLo 10YR 6/4 SiClLo	Ø	
ARG-26	E	" "	" "	I II	0-23cm 23-33cm	Same As Above	Ø	
ARG-29	P/D	" "	wooded, two-track road	-	-	-	Ø	
ARG-30	E	" "	Relatively flat, wooded	I II	0-15cm 15-25cm	10YR 4/2 with iron oxide 10YR 6/4 mottled with 10YR 6/6 SiClLo with Fe_2O_3	Ø	
ARG-34	E	" "	Relatively flat ag. field (corn)	I II	0-22cm 22-32cm	10YR 4/2 SiLo 10YR 6/3 mottled with 10YR 6/6 SiClLo	Ø	
ARG-36	E	" "	" "	I II	0-23cm 23-33cm	Same As Above	Ø	
ARG-38	E	" "	" "	I II	0-22cm 22-32cm	Same As Above	Ø	
ARG-41	E	" "	Slightly undulating terrain, wooded	I II	0-17cm 17-27cm	Same As Above	Ø	

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Sample Loci (SL) Form

Project Name and Number FE Highland to Magellan
Recorder V Stark
Date 3/10/2021

Segment ARG
Transect ARG
Location _____

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARG-45	E	15m	Woods flat	I II	0-16 16-34	10YR3/2 s.l. 10YR6/4 s.l.	Ø	
ARG-49	E	15m	" "	I II III	0-6 6-17 17-30	10YR2/2 s.l. 10YR3/2 s.l. 10YR7/2 s.l.	Ø	wetland soils
ARG-52	E	15m	" "	I II	0-14 14-28	10YR3/2 s.l. 10YR6/2 s.l.	Ø	
ARG-84	E	15m	grass/shrub slight slope/hill	I II	0-33 33-45	10YR4/2 s.l. w/ Fe O 10YR 6/3 s.l.	Ø	
ARG-89	E	15m	" "	I II	0-17 17-35	10YR 3/3 s.l. w/ rocks 10YR 5/6 s.l.	Ø	
ARG 59-71	P	1	Flat, Corn Field	—	—	—	Ø	<50% visibility
ARG-72-83	P/W		Wetlands	—	—	—	Ø	
ARG-87	P		Tall grasses, S. Facing Slope	—	—	—	Ø	SL covered by nearby ST5
ARG-90-92	P/D		Existing Access Road,	—	—	—	Ø	Buried Waterline
ARG-1-44	P/D	↓	↓	—	—	—	Ø	" "

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/10/21

Segment
Transect
Location Access Road 6

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR6-47	P	15m interval GPS	Relatively flat wooded	—	—	—	Ø	Large amount of dead fall/timber
AR6-48	E	" "	" "	I II	0-18cm 18-28cm	10YR 4/2 SiLo 10YR 6/3 mottled with 10YR 6/6 SiCLo	Ø	
AR6-51	E	" "	" "	I II	0-15cm 15-25cm	Same As Above	Ø	Subsoil contained large amount of moisture
AR6-57 ↓ 71	P	" "	Relatively flat ag. field (corn)	—	—	—	Ø	>50% visibility
AR6-85	E	" "	Edge of grass field, lower hillside slope	I II	0-22cm 22-32cm	10YR 4/2 SiLo 10YR 6/4 SiCLo with iron oxide	Ø	
AR6-86	E	" "	" "	I II	0-16cm 16-26cm	Same As Above	Ø	
AR6-88	E	" "	" "	I II	0-24cm 24-26cm	10YR 4/2 SiLo 10YR 6/4 Loam Rock impasse @ 26 cm bgs	Ø	Large rocks throughout
AR6-15	P	" "	Transmission Line Corridor Grass	—	—	—	Ø	SL covered by nearby STs
AR6-31	P	" "	Mostly flat wooded	—	—	—	Ø	" "
AR6-44	P	" "	" "	—	—	—	Ø	" "

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/09/21

Segment
Transect
Location Access Road 6

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR6-127 ↓ 130	P/W	15m interval GPS	Transmission corridor, edge of delineated wetland	–	–	–	Ø	
AR6-131	E	" "	Transmission corridor, grass/ brush	I II	0-23cm 23-33cm	10YR 3/2 SiLo 10YR 5/6 SiClLo	Ø	
AR6-132 ↓ 134	P/D	" "	Transmission corridor, rutting uneven terrain	–	–	–	Ø	
AR6-120	P/D	" "	Transmission tower	–	–	–	Ø	
AR6-160	E	" "	Relatively flat ag. field	I II	0-28cm 28-38cm	10YR 4/3 SiLo 10YR 5/6 SiClLo	Ø	
AR6-109	E	" "	Relatively flat ag. field (corn)	I II	0-27cm 27-37cm	10YR 4/3 SiLo 10YR 6/2 mottled with 10YR 5/6 SiClLo	Ø	
AR6-108	E	" "	" "	I II	0-26cm 26-36cm	10YR 3/2 SiClLo with iron oxide 10YR 6/2 mottled with 10YR 5/6 SiClLo	Ø	
AR6-111-119	P	" "	Harvested Soy, flat, plain	–	—	—	Ø	>50% visibility
AR6-93-107	P/W	" "	Wetlands	—	—	—	Ø	Delineated Wetlands Water @ Surface

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Sample Loci (SL) Form

Project Name and Number FE Highland Magellan
Recorder J Strunk
Date 3/9/2021

Segment ARG
Transect ARG
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARG-126	E/D	15m	grass, 2nd g/out tree rolling	I II	0-16 16-30	10YR 3/3 silo mottled w/ 10YR 2/2 silo 10YR 5/6 silo 10YR 5/6 sil.	Ø	
ARG-121-125	P/W	15m	wetland rolling	—	—	—	—	In transmission corridor
ARG-158	E	15m	harvested soy rolling to flat	I II	0-25 25-35	10YR 4/3 silo 10YR 6/3 silo w/ FeOx	Ø	
ARG-110	E	15m	harvested corn flat	I II	0-19 19-30	10YR 4/6 silo 10YR 6/2 silclo w/ FeOx	Ø	
ARG-163-184	P/D		Existing Gravel Road	—	—	—	Ø	
184-189	P		Harvested Soy, Flat Plain	—	—	—	Ø	>50% visibility
157-162	P		" "	—	—	—	Ø	" "
137-155	P/D		Existing Gravel Road	—	—	—	Ø	
156-157	P		Harvested Soy, Flat Plain	—	—	—	Ø	
135-136	P/D		Tall grasses, Transmission Corridor	—	—	—	Ø	Remnant access road in corridor

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder K. Johnson
Date 3/9/2021

Segment_____
Transect_____
Location AR-A, AR-B

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARA-1-2	P/W	15m/GPS	Wetlands, Flat plain	—	—	—	∅	Delineated Wetland, water @ Surface
ARB-1-4	P/W	↓	↓	—	—	—	∅	" "

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/09/21

Segment
Transect
Location Access Road C

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARC-12	E	15m interval GPS	Relatively flat transmission corridor, grass	I II	0-18cm 18-28cm	10YR 5/2 SiLo with iron oxide 10YR 6/2 mottled with 10YR 5/6 SiClLo iron oxide	Ø	
ARC-10	E	" "	" "	I II	0-7cm 7-23cm	10YR 3/2 SiLo with iron oxide 10YR 6/2 mottled with 10YR 5/6 SiClLo iron oxide	Ø	
ARC-8	E	" "	" "	I II	0-21cm 21-31cm	10YR 4/2 SiLo 10YR 6/4 SiClLo with iron oxide	Ø	
ARC-6	E	" "	" "	I II	0-22cm 22-32cm	10YR 4/2 SiLo 10YR 6/4 SiClLo	Ø	
ARC-4	E	" "	Relatively flat, edge of wood line adjacent to corridor	I II	0-24cm 24-34cm	10YR 4/2 SiLo 10YR 6/4 SiClLo	Ø	
ARC-3	E	" "	" "	I II	0-19cm 19-29cm	Same As Above	Ø	
ARC-13-26	P/W	" "	Wetlands	—	—	—	Ø	Delineated Wetlands, water @ Surface
ARC-1	P	" "	Wooded marsh/ flat plain	—	—	—	Ø	Survey area covered by adjacent SL
ARC-27-28	P	" "	" "	—	—	—	Ø	" "

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Sample Loci (SL) Form

Project Name and Number FE Highland to Magellan
Recorder J Stroik
Date 3/9/2021

Segment ARC
Transect ARC
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARC -11	E	15m	grass flat	I II	0-16 16-30	10YR 4/2 s:l 10YR 6/2 s:l	0	Transmission corridor
ARC -9	E/D	15m	"	I II	0-17 17-28	10YR 3/2 s:l mottled w/ 10YR 6/2 10YR 6/2 s:l	0	"
ARC -7	E/D	15m	"	I II	0-13 13-30	10YR " "	0	"
ARC -5	E	15m	"	I II	0-14 14-30	10YR 3/3 s:l 10YR 6/2 s:l	0	along treeline
ARC -2	E	15m	"	I II	0-18 18-34	" "	0	"

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder K. Johnson
Date 3/10/2021

Segment
Transect
Location Access Road D

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR D 1–11	P/D	15m/GPS	Existing Gravel Access Road	—	—	—	∅	

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****P=** Prehistoric, **H=**Historic, **M=** Modern

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Sample Loci (SL) Form

Project Name and Number First Energy - Highland Magellan
Recorder K. Johnson
Date 3/9/2021

Segment _____
Transect _____
Location Access Rd E

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARE-1-39	P/D	15m/GPS	Existing Gravel/ Dirt Road	—	—	—	∅	Access Road to Gas/Oil Storage Tanks
ARE-40-44	P	↓	Harvested Soy					>50% visibility

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Mayflower
Recorder K. Johnson
Date 3/9/2021

Segment
Transect
Location Access Road F

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARF-1-11	P/D	15m/GPS	Existing Gravel Road	—	—	—	Ø	
ARF-12-13	P/W		Access Road in wetlands	—	—	—	Ø	
ARF-14-17	P/D		Existing Transmission Access Road	—	—	—	Ø	
ARF-18-21	P		Edge of Soy Field Flat, Plain	—	—	—	Ø	>50% visibility

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Page__ of ____

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder K. Johnson
Date 3/10/2021

Segment _____
Transect _____
Location Access Road G

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARG-3	E	15L/GPS	Shoulder of SE facing slope, Tall Grasses	I(Ap) II	0-25cm 25-30cm	10YR 4/3 SiLo 10YR 4/1 SiLo matrix around 30% large	Ø rocks/gravel	Impasse @ 30cm, possible bedrock
ARG-4	E			I(Ap) II(B)	0-22cm 22-27cm	〃 〃	Ø	〃 〃
ARG-7	E			I(Ap) II(B)	0-24cm 24-35cm	10YR 4/3 SiLo 10YR 6/3, 5/6 SiLo w/ Iron, Manganese	Ø	10% large rocks in Ap
ARG-9	E			I(Ap) II(B)	0-31cm 31-41cm	10YR 4/3 SiLo 10YR 6/2, 5/6 Sandy Loam	Ø	Sand is possibly disturbed sandstone
ARG-1	P		↓	—	—	—	Ø	SL covered by other nearby STs
ARG-11-38	P/D		Existing Gravel Road	—	—	—	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/10/21

Segment
Transect
Location Access Road G

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARG-2	E	15m interval GPS	Grass Field, middle hillside slope	I II	0-24cm 24-34cm	10YR 4/2 SiLo 10YR 6/4 SiClLo	Ø	
ARG-5	E	" "	" "	I	0-33cm	10YR 4/2 SiLo Rock impasse @33cmbgs	Ø	Large rocks throughout
ARG-8	E	" "	" "	I	0-24cm	10YR 4/2 SiLo Rock impasse @24cmbgs	Ø	" "

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number FE Highland to Magellan
Recorder J Stroik
Date 3/10/2021

Segment ARG
Transect ARG
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARG-6	E	15m	wild grass hillside	I	0-30	10YR 3/3 silt w/rocks, rockinpass-bedrock-sandstone	0	
ARG-10	E	15m	" "	I	0-25	10YR 3/3 silt w/rocks, rockinpass-sandstone	0	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder K. Johnson
Date 3/11/2021

Segment
Transect
Location Access Road Y

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
ARY-8	E	15m/GPS	Harvested Soy Mostly Flat Plain	I(Ap)	0-12cm	10YR4/2 SiLo	ϕ	
				II(B)	12-25cm	10YR 6/4 SiCLo		
ARY-1-7	P	↓	↓	—	—	—	ϕ	>50% visibility
ARY-9-13	P	↓	↓	—	—	—	ϕ	" "

***Use one code only.** **E**= Excavated Shovel Test, **P**= Pedestrian, **D**= Disturbed, **W**= Wet, **S**= Slope
****P**= Prehistoric, **H**=Historic, **M**= Modern

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy - Highland Magellan
Recorder K. Johnson
Date 3/9/2021

Segment
Transect
Location Crane Pad

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
CP C1-C4	P/W	15m/GPS	Wetlands	—	—	—	∅	Delineated Wetlands Water @ Surface
CP B1-B4	P/W	↓	↓	—	—	—	∅	
CP A1-A4	P/W	↓	↓	—	—	—	∅	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number FE Magellan to Highland
Recorder J Stroik
Date 3/9/2021

Segment Pull Sites 1+2+3
Transect A
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
PS1 -A1	E	15m	harvested corn flat	I II	0-20 20-30	10YR3/2 sicl lo w/ 10YR6/2 silo w/FeOx	Ø	
PS1 -A2	E	15m	"	I II	0-33 33-49	" "	Ø	
PS2- A1	E	15m	"	I II	0-23 23-33	10YR 4/2 sicl lo 10YR 6/2 silo w/FeOx	Ø	
PS2- A2	E	15m	"	I II	0-31 31-41	" "	Ø	
PS3- B1-B5	P/W	15m	Wetlands, Plain	—	—	—	Ø	Delineated Wetland, Water @ Surface
PS3- A1 to A3	P/W	15m	" "	—	—	—	Ø	" "

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/10/21

Segment
Transect
Location Pull Site 4

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
PS4-A4 A5	P/W	15m interval GPS	Relatively flat delineated wetland	–	–	–	Ø	
PS4-B3 ↓ B5	P/W	" "	" "	–	–	–	Ø	
PS4-C3 ↓ C5	P/W	" "	" "	–	–	–	Ø	
PS4-A3	E	" "	Relatively flat transmission corridor, grasses	I II	0-14cm 14-24cm	10YR 4/2 SiLo 10YR 6/4 SiCLo	Ø	
PS4-A2	E	" "	" "	I II	0-20cm 20-30cm	10YR 4/2 SiLo 10YR 6/4 SiCLo	Ø	
PS4-A1	E	" "	" "	I II	0-21cm 21-31cm	Same As Above	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

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Sample Loci (SL) Form

Project Name and Number FE Highland to Magellan
Recorder J Stroik
Date 3/10/2021

Segment PS4
Transect B
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
PS4-B2	E1D	15m	grass flat	I II	0-17 17-27	10YR 2/1 Loam Cimported 10YR 6/3 sicl lo	0	Transmission corridor
PS4-B1	E1D	15m	"	I II	0-15 15-35	10YR 4/4 silo mottled w/ 10YR6/4 silo 10YR 6/4 silo	0	"
PS4-C1	E1D	15m	"	I II	0-15 15-30	" "	0	"
PS4-C2	E1D	15m	"	I II	0-7 7-26	10YR3/2 mottled w 10YR6/4 silo 10YR6/4 silo	0	"

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder K. Johnson
Date 3/8/2021

Segment _____
Transect _____
Location SA - 1

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
A1 to A3	P/D	15m/GPS	Tall Grasses, Push Piles	—	—	—	∅	Heavily disturbed area adjacent to Substation
B1 to B3	P/D	↓	↓	—	—	—	∅	
C1 to C3	P/D	↓	↓	—	—	—	∅	

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AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/09/21

Segment
Transect
Location Soil Area 2

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
SA2-B3	E	15m interval GPS	Slightly undulating terrain, ag field	I II	0-24cm 24-34cm	10YR 4/3 SiClLo 10YR 6/2 mottled with 10YR 6/6 SiClLo	Ø	
E3	E	" "	" "	I II	0-25cm 25-35cm	10YR 4/3 SiClLo 10YR 6/2 mottled with 10YR 6/6, 5/1 SiClLo	Ø	
A1 ↓ A6	P	" "	" " >50% visibility	-	-	-	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
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AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Maple
Recorder K. Johnson
Date 3/9/2021

Segment _____
Transect _____
Location Soil Area 2

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
SA2-D2	E	15m/GPS	Mostly flat Harvested Soy. Plain	I(Ap) II(B)	0-30cm 30-40cm	10YR 4/3 SiCl 10YR 4/2, 5/6 C/Co	∅	
SA2-F2	E			I(Ap) II(B)	0-26cm 26-36cm	" "	∅	
SA2-F1	P			—	—	—	∅	50% Visibility
SA2-F4-F6	P			—	—	—	∅	
SA2-E4-E6	P			—	—	—	∅	
SA2-D1	P			—	—	—	∅	
SA2-D3-D6	P			—	—	—	∅	
SA2-C1-C6	P			—	—	—	∅	
SA2-B1-B2	P			—	—	—	∅	
SA2-B4-C6	P			—	—	—	∅	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
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AECOM

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Sample Loci (SL) Form

Project Name and Number FE Magellan
Recorder J Strak
Date 3/9/2021

Segment Soil Area 2
Transect E
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
SA2-E2	E	15m	harvested soy flat	I	0-26	10YR 4/2 silt lo	P: 1 flake H: 2 cont. glass	site: FE-HMTP-02
				II	26-38	10YR 5/3 silt lo w/ Fe Ox	Ø	
SA2-E1	E	15m	" "	I	0-21	" "	Ø	
				II	21-37	" "		

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

FE-HMTP-02 Radials

AECOM

Page__ of ____

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/09/21

Segment
Transect
Location Soil Area 2

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
SAZ EZ +10m S	E	10m south radial of initial positive SAZ-EZ	Slightly undulating terrain, ag. field	I II	0-22cm 22-32cm	10YR 4/3 SiClLo 10YR 6/2 mottled with 10YR 6/6 SiClLo	Ø	
SAZ EZ +10m N	E	10m north radial of " "	" "	I II	0-24cm 24-36cm	10YR 4/2 SiClLo 10YR 5/3 SiClLo with iron oxide	Ø	
SAZ EZ +10m W	E	10m west radial of " "	" "	I II	0-31cm 31-41cm	10YR 4/3 SiClLo 10YR 6/2 mottled with 6/6 SiClLo	Ø	
SAZ EZ +5m S	E	5m south radial of " "	" "	I II	0-24cm 24-34cm	Same As Above	Ø	
SAZ EZ +5m W	E	5m west radial of " "	" "	I II	0-26cm 26-36cm	Same As Above	Ø	
SAZ EZ +5m N	E	5m north radial of " "	" "	I II	0-24cm 24-41cm	Same as above	Ø	
SAZ EZ +5m E	E	5m East radial of " "	" "	I II	0-23cm 23-33cm	Same As Above	Ø	
SAZ EZ +10m E	E	10m East radial of " "	" "	I II	0-25cm 25-35cm	Same As Above	Ø	

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AECOM

Sample Loci (SL) Form

Project Name and Number FE Highland to Magellan
Recorder JStroik
Date 3/11/202

Segment WS1
Transect A
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
WS1 -A1	E	15m	harvested for rolling to flat	I II	0-15 15-25	10YR 3/2 silo 10YR 6/2 silow/FeQ	0	old wetland
WS1 -A2	P	15m	" "	-	—	—	-	80% VIS

***Use one code only.** **E**= Excavated Shovel Test, **P**= Pedestrian, **D**= Disturbed, **W**= Wet, **S**= Slope
****P**= Prehistoric, **H**=Historic, **M**= Modern

AECOM

Page__ of ____

Sample Loci (SL) Form

Project Name and Number FE Highland to Magellan
Recorder JStroik
Date 3/11/2021

Segment
Transect D, E,
Location WS2

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
WS2-D2	E	15m	wild grass, tree hillside	I II	0-11 11-25	7.5YR 3/3 silo w/root 7.5YR 5/6 silo	Ø	
WS2 E2	E	15m	" "	I II	0-35 35-45	" "	Ø	
WS2 -D1	E	15m	harvested corn no till hillside	I	0-35	7.5YR 3/3 silo w/rocks rock impass	Ø	
WS2 -E1	E	15m	" "	I II	0-32 32-42	7.5YR 3/3 silo 7.5YR 5/6 s.l. large rocks at interface	Ø	
WS2 E3-E4	P/D	15m/GPS	weedy farm, ditch on side of railroad	—	—	—	Ø	
WS2-D3	P/D			—	—	—	Ø	
WS2-C1-C2	P/D			—	—	—	Ø	
WS2-B1-B2	P/D			—	—	—	Ø	
WS2-A1	P/D			—	—	—	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Page__ of ____

Sample Loci (SL) Form

Project Name and Number FE Highland to Magellan
Recorder J Stroik
Date 3/11/2021

Segment ____
Transect A, B, C, D
Location WS3

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
WS3 -A2	E 10	15m	Woods spoil pile	I II	0-5 5-15	10YR 3/3 humas s.l. 10YR 5/3, 10YR 6/2 sil. w/Fe O	Ø	spoil pile area from railroad
WS3- A1	P/S	15m	"	—	—	—	—	
WS3 B1	P/S	15m	"	—	—	—	—	
WS3- A3-A4	P/D	15m	"	—	—	—	—	spoil pile area from railroad
WS3- B2-B3	P/D	15m	"	—	—	—	—	"
WS3- C1-C2	P/D	15m	"	—	—	—	—	"
WS3- D1-D2	P/D	15m	"	—	—	—	—	"

***Use one code only.** **E**= Excavated Shovel Test, **P**= Pedestrian, **D**= Disturbed, **W**= Wet, **S**= Slope
****P**= Prehistoric, **H**=Historic, **M**= Modern

AECOM

Field ID: FE-HMTP-01

Segment/Tract: Access Road 4

Recorder/Date: K. Johnson / 8 MAR 2024

Site Field Identification Record

LOCATION (describe in terms of AECOM Segment, Parcel, SLs, roads, prominent geographic features, etc.)
FE-HMTP-01 is located on Access Road 4 from roughly SL AR4-60 to AR4-64. The site is located just south of existing First Energy Tower location 42038, south of the CSX Railroad and north of Salt Springs Road in Cortland town, Trumbull County, Ohio

DESCRIPTION OF SITE Shape of site: _____ Length: _____ Width: _____ Acreage: _____

Topographic Setting: Flat, hill plain

Distance from River/Creek: _____ Direction _____ Site prone to flooding: _____

Vegetation: Harvested Soy

Ground Visibility: Good >50% % Fair _____ % Poor _____ %

Disturbances: Animal / Rodent Vandalism / Looting (Plowing / Farming) Roads / Construction

Environmental / Flooding Other: _____

FIELD EFFORT

Pedestrian Survey: (Yes) / No Location of survey _____ Spacing Interval: _____ meters

Surface Finds: (Yes) / No Shovel Tests: # 5 # of Positives 0 # Radials: _____

Prehistoric Field Count

Flakes/Debitage: _____

PPK: _____ Biface: _____

Ceramics: _____

Core: _____ FCR: _____

Other: _____

Historic Field Count 84

Domestic: 83 *Glass:* 47 *Ceramic:* 35 *Metal:* 1

Architectural: 1 *Glass:* 1 *Brick:* _____ *Nails:* _____

Other: _____

Extant Features: _____

Temporally-Diagnostic Materials: Artifacts collected represent a 20% sample of surface artifacts

AECOM Imagine it. Delivered.

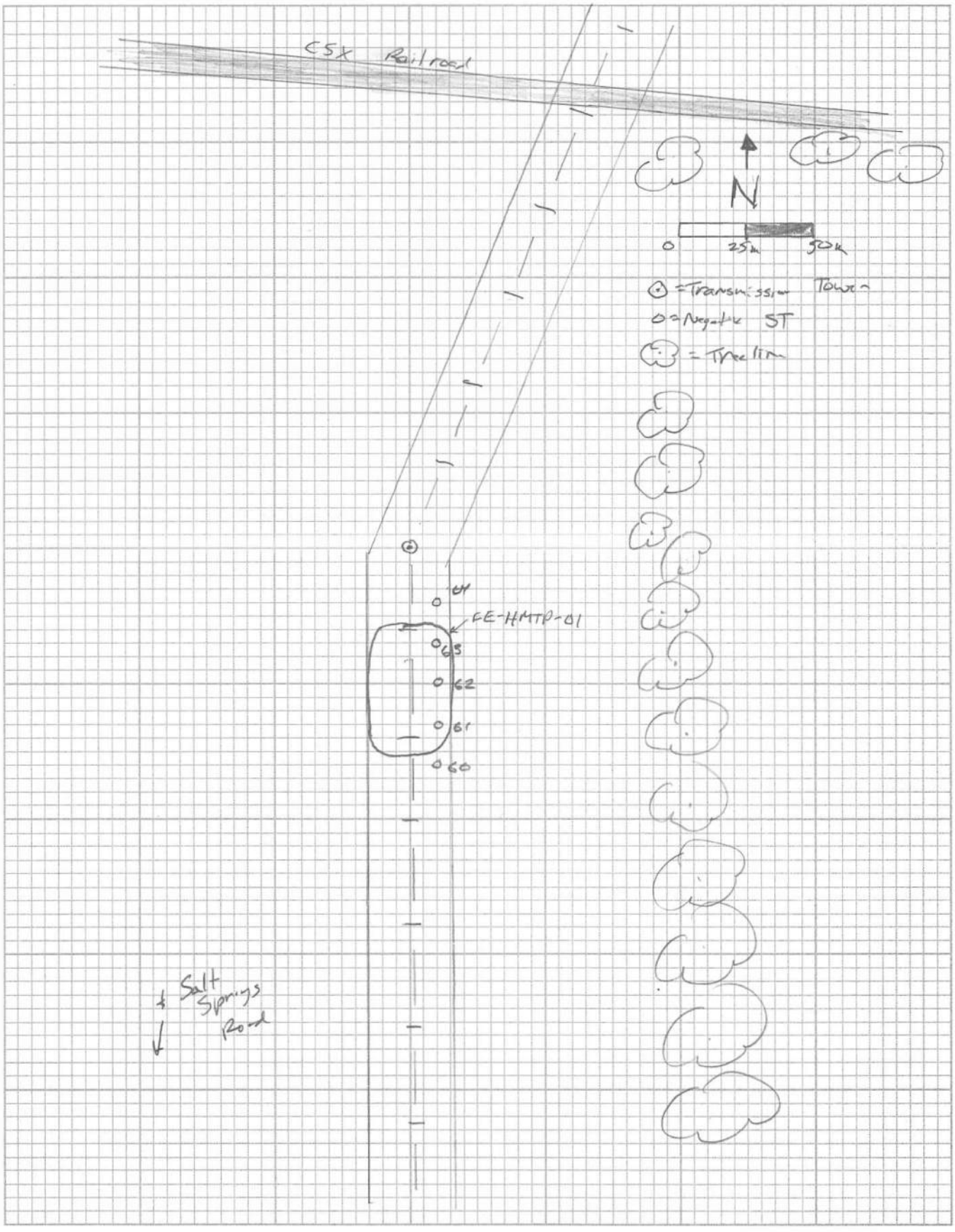
JOB TITLE First Energy - Highland Mogellan Transmission Project

PROJECT/JOB NO. _____ CALCULATION NO. _____

COMPUTED BY K. Johnson DATE 3/8/2021

VERIFIED BY _____ DATE _____

SCALE 1" = 50 meters SHEET NO. 1 OF 1



10x10 = 1 in

AECOM

Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/08/21

Segment
Transect
Location Access Road 4

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR4-65	P/D	15m interval GPS	Transmission tower	—	—	—	Ø	
AR4-64	E	" "	Slightly undulating ag. field	I II	0-22cm 22-32cm	10YR 4/3 SiLo 10YR 6/4 mottled with 10YR 6/6 SiClLo	Ø	
AR4-62	E	" "	" "	I II	0-15cm 15-25cm	Same As Above	Ø	
AR4-60	E	" "	" "	I II	0-19cm 19-29cm	10YR 4/3 SiLo 10YR 6/4 mottled with 10YR 5/2, 6/6 SiClLo	Ø	
AR4-16	E	" "	" "	I II	0-27cm 27-37cm	Same As Above	Ø	
AR4-41-59	P	" "	" "	—	—	—	Ø	50% Surface Visibility
AR4-1-9	P	" "	" "	—	—	—	Ø	↓
AR4-11-18	P	" "	" "	—	—	—	Ø	
AR4 19-40	P/D	" "	Gravel/ Dirt Road	—	—	—	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Sample Loci (SL) Form

Project Name and Number FE Magellan
Recorder J Stroik
Date 3/8/2021

Segment
Transect AR4
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
AR4 -63	E	15m	harvested soy	I	0-14	10YR 3/2 silo	Ø	
			rolling to flat	II	14-25	10YR 6/4 silt		
AR4 -61	E	15m	" "	I	0-18	" "	Ø	
				II	18-28			

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

AECOM

Field ID: FE-HMTP-02

Segment/Tract: Soil Area 2

Recorder/Date: K. Johnson / 9MAR2021

Site Field Identification Record

LOCATION (describe in terms of AECOM Segment, Parcel, SLs, roads, prominent geographic features, etc.)
FE-HMTP-02 is located in Soil Area 2 at SL SAZ-E2 South of Salt Springs Road and west of a gravel access road for a Transmission Line in Cortelstown, Trumbull County, Ohio

DESCRIPTION OF SITE Shape of site: _____ Length: _____ Width: _____ Acreage: _____

Topographic Setting: Till Plain

Distance from River/Creek: _____ Direction _____ Site prone to flooding: _____

Vegetation: Harvested Soy

Ground Visibility: Good >50% % Fair _____ % Poor _____ %

Disturbances: Animal / Rodent Vandalism / Looting (Plowing / Farming) Roads / Construction

Environmental / Flooding Other: _____

FIELD EFFORT

Pedestrian Survey: (Yes) / No Location of survey _____ Spacing Interval: _____ meters

Surface Finds: Yes / (No) Shovel Tests: # 5 # of Positives 0 # Radials: 8

Prehistoric Field Count (1) **Historic Field Count** (2)

Flakes/Debitage: 1 Domestic: 2 *Glass:* 2 *Ceramic:* _____ *Metal:* _____

PPK: _____ Biface: _____ Architectural: _____ *Glass:* _____ *Brick:* _____ *Nails:* _____

Ceramics: _____ Other: _____

Core: _____ FCR: _____ Extant Features: _____

Other: _____

Temporally-Diagnostic Materials: _____

AECOM Imagine it. Delivered.

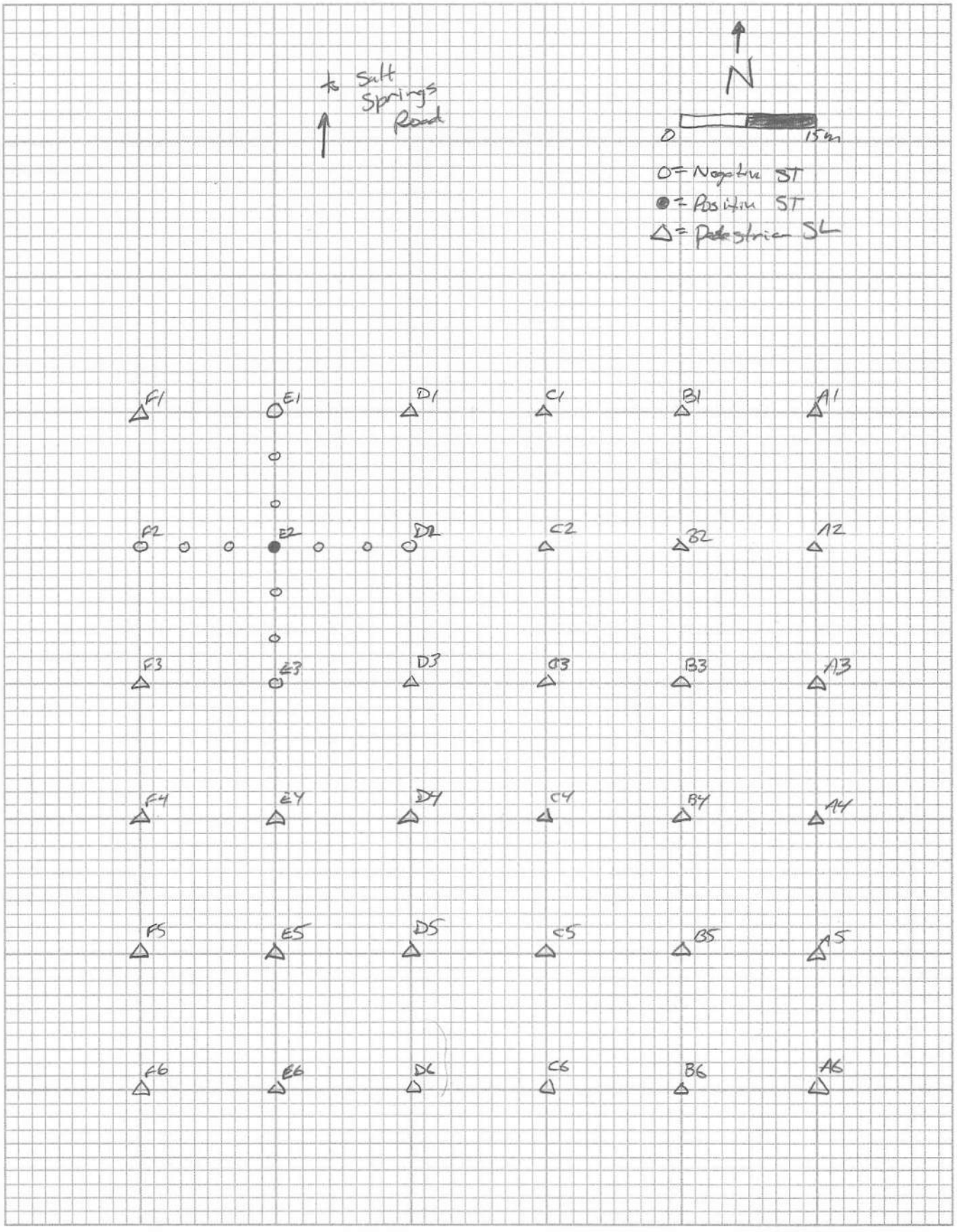
JOB TITLE First Energy - Highland Mageller Transmission Project

PROJECT/JOB NO. _____ CALCULATION NO. _____

COMPUTED BY K. Johnson DATE 3/9/2024

VERIFIED BY _____ DATE _____

SCALE 1" = 15 m SHEET NO. 1 OF 1



10x10 = 1 in

AECOM

Page__ of ____

Sample Loci (SL) Form

Project Name and Number FE Magellan
Recorder J Strak
Date 3/9/2021

Segment Soil Area 2
Transect E
Location

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
SA2-E2	E	15m	harvested soy flat	I	0-26	10YR 4/2 silt lo	P: 1 flake H: 2 cont. glass	site: FE-HMTP-02
				II	26-38	10YR 5/3 silt loam/Fe Ox	∅	
SA2-E1	E	15m	" "	I	0-21	" "	∅	
				II	21-37			

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

FE-HMTP-02 Radials

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Sample Loci (SL) Form

Project Name and Number First Energy Highland Magellan
Recorder AR
Date 03/09/21

Segment
Transect
Location Soil Area 2

SL #	SL Type*	Distance from Previous SL	Vegetation/ Topography	Strat	Depth	Soil Profile (Color and Texture)	Artifacts** (Type, Count)	Comments
SAZ EZ +10m S	E	10m south radial of initial positive SAZ-EZ	Slightly undulating terrain, ag. field	I II	Ø-22cm 22-32cm	10YR 4/3 SiClLo 10YR 6/2 mottled with 10YR 6/6 SiClLo	Ø	
SAZ EZ +10m N	E	10m north radial of " "	" "	I II	Ø-24cm 24-36cm	10YR 4/2 SiClLo 10YR 5/3 SiClLo with iron oxide	Ø	
SAZ EZ +10m W	E	10m west radial of " "	" "	I II	Ø-31cm 31-41cm	10YR 4/3 SiClLo 10YR 6/2 mottled with 6/6 SiClLo	Ø	
SAZ EZ +5m S	E	5m south radial of " "	" "	I II	Ø-24cm 24-34cm	Same As Above	Ø	
SAZ EZ +5m W	E	5m west radial of " "	" "	I II	Ø-26cm 26-36cm	Same As Above	Ø	
SAZ EZ +5m N	E	5m north radial of " "	" "	I II	Ø-24cm 24-41cm	Same as above	Ø	
SAZ EZ +5m E	E	5m East radial of " "	" "	I II	Ø-23cm 23-33cm	Same As Above	Ø	
SAZ EZ +10m E	E	10m East radial of " "	" "	I II	Ø-25cm 25-35cm	Same As Above	Ø	

***Use one code only.** **E=** Excavated Shovel Test, **P=** Pedestrian, **D=** Disturbed, **W=** Wet, **S=** Slope
****P=** Prehistoric, **H=**Historic, **M=** Modern

Appendix E Unanticipated Discovery Plan

UNANTICIPATED DISCOVERY PLAN FOR HISTORIC PROPERTIES AND HUMAN REMAINS IN OHIO – HIGHLAND-MAGELLAN 138KV TRANSMISSION LINE PROJECT

In order to assist the United States Army Corps of Engineers (USACE) in meeting the requirements of Section 106, as defined in the Advisory Council on Historic Preservation (Council) regulations "Protection of Historic Properties" (36 CFR Part 800), American Transmission Systems, Incorporated (ATSI), a FirstEnergy (FirstEnergy) company, has developed the following Unanticipated Discovery Plan to be implemented should new or additional Historic Properties be encountered after construction has begun on the proposed projects (undertaking). This plan has been developed through reference to the regulations embodied in "Protection of Historic Properties" issued by the Council (revised August 2004, www.achp.gov/sites/default/files/regulations/2017-02/regs-rev04.pdf).

In preparation of this plan, ATSI and its consultant AECOM reviewed Ohio legislation (Ohio Revised Code, Sections 149:51 through 149.54) which was used in the development of this plan.

Termed "unanticipated discovery" or "post-review discovery," the identification of new or additional cultural resources during implementation of an undertaking typically occurs in the case of projects that involve excavation or ground-disturbing activities. The plan detailed herein will be implemented by ATSI if previously undiscovered archaeological resources and/or human remains are identified.

PROCEDURE WHEN CULTURAL MATERIALS ARE OBSERVED

The following measures will be implemented should an unanticipated cultural resource discovery be made by an ATSI inspector, a contractor, or subcontractor during construction of the proposed undertaking:

1) Construction activities within the immediate area of an unanticipated discovery will be halted ("immediate area" is a context-specific measure; however, roughly 30 to 50 feet is generally adequate, although special attention should be given to the possible extension of a new find beyond this buffer zone), and the discovery protected from further disturbance;
2) ATSI will notify their cultural resources consultant (AECOM), who will notify, by telephone, the USACE and the Ohio Historic Preservation Office (OHPO) and, in the case of human remains, the County Coroner and Sheriff. These notifications will take place within 24 hours of an unanticipated discovery;
3) Specific USACE and OHPO instructions concerning an unanticipated discovery resulting from the notification as described above will be followed, although at a minimum sufficient archaeological work will be performed on the unanticipated discovery location to stabilize

deposits, protect deposits from scavengers or looters, and to collect readily available samples (e.g., for radiocarbon dating) which may help pinpoint the age of deposits; and,

4) ATSI will consult with the USACE and the OHPO on the most appropriate course of action for treatment of the unanticipated discovery. This may involve further archaeological study or consultation with Native American groups or other parties with established cultural affiliation. Construction activities will remain halted in the area of the unanticipated discovery until the USACE and the OHPO indicate to ATSI that it may proceed in the area of a specific unanticipated discovery.

In the case of an unanticipated discovery of human remains, ATSI proposes to follow all relevant state and federal law, and recommendations regarding treatment of human remains as referenced above. ATSI recognizes the importance of providing careful and respectful treatment for human remains recovered as an unanticipated discovery, or as part of an archaeological investigation. In the event of an unanticipated discovery of human remains, ATSI will refer to the USACE and the OHPO as to the appropriate Native American or other groups with which to consult. Lastly, in coordination with the USACE, the OHPO, and other interested parties, a decision will be made for the treatment of the remains (e.g., reburial, preservation in place, scientific study, sacred ritual, or a combination thereof). This protocol includes the following:

1) Should human remains be encountered, work in the general area of the discovery will stop immediately and the location will be immediately secured and protected from damage and disturbance.
2) Human remains or associated artifacts will be left in place and not disturbed. No skeletal remains, or materials associated with the remains, will be collected or removed until appropriate consultation has taken place and a plan of action has been developed.
3) The county coroner/medical examiner, local law enforcement, the USACE, the OHPO, and appropriate Native American tribes will be notified immediately. The coroner and local law enforcement will make the official ruling on the nature of the remains, being either forensic or archaeological.
4) If human remains are determined to be Native American, the remains will be left in place and protected from further disturbance until a plan for their avoidance or removal can be generated. The USACE will consult with the OHPO and appropriate Native American tribes to develop a plan of action that is consistent with the Native American Graves Protection and Repatriation Act (NAGPRA) guidance.
5) If human remains are determined to be non-Native American, the remains will be left in place and protected from further disturbance until a plan for their avoidance or removal

can be generated. Consultation with the USACE, the OHPO, and other appropriate parties will be required to determine a plan of action. Historic research and consultation with local authorities and historic experts will be conducted to try to determine the possible identity and affiliation of the remains and determine if there are any lineal descendants who should be consulted concerning the treatment of the remains. Notice of the discovery will be published in local media outlets for at least three days to assist in identification of lineal descendants.

CONTACT LIST

USACE Environmental Contacts

To be determined

ATSI Contact

To be determined

OHPO Contact

Stephen Biehl, Project Reviews Coordinator
Ohio Historical Society
Ohio Historic Preservation Office
800 East 17th Avenue
Columbus, Ohio 43211-2474
Phone: (614) 298-2000

AECOM Contact

Mr. Christopher G. Leary, Cultural Resources Team Lead
525 Vine Street, Suite 1800
Cincinnati, Ohio 45202
Phone: (513) 419-3439
christopher.leary@aecom.com

Local Law Enforcement Contacts

Trumbull County Coroner
Dr. Lawrence M. D'Amico, MD
2931-B Youngstown Road, S.E.
Warren, OH 44484
Phone: 330-675-2516

Trumbull County Sheriff
Paul S. Monroe
150 High Street NW
Warren, OH 44481
Phone: 330-675-2508