CASE NO. 14-1717-GA-BLN
LON
AVON LAKE GAS ADDITION PROJECT
PROPOSED NATURAL GAS PIPELINE

ATTACHMENT C

CULTURAL RESOURCES AND OHIO HISTORIC PRESERVATION OFFICE COORDINATION AND CORRESPONDENCE

Environmental Resources Management

1701 Golf Road
Suite 1-700
Rolling Meadows, IL 60008
+1 847 258 8900
+1 847 258 8901 (fax)

June 11, 2014

Mr. Mark Epstein
Ohio Historic Preservation Office
800 East 17th Avenue
Columbus, Ohio 43211-2474

Subject: NRG Ohio Pipeline Company LLC Pipeline Project
Lorain County, Ohio

Dear Mr. Epstein:

NRG Ohio Pipeline Company LLC ("NRG Ohio Pipeline") is developing an approximately 20-mile natural gas pipeline in Lorain County, Ohio in order to provide natural gas as a fuel source to the Avon Lake Power Plant, which is owned by an affiliate of NRG Ohio Pipeline ("Pipeline Project or Project"). The natural gas pipeline's proposed project route ("Proposed Project Route") mostly parallels existing road, railroad and utility rights-of-way ("ROW") and will be primarily located in previously disturbed areas. Affected or adjacent land uses mostly include existing industrial, commercial and mixed residential uses. Additionally, extensive wetlands occur along the Proposed Project Route. The pipeline will require a permanent 50-foot ROW for operation and maintenance and up to 50 additional feet of temporary ROW for construction.

In light of the previously disturbed nature of the area that will be affected by the Project and the prevalence of wetlands, we hereby seek your concurrence that archaeological resource surveys be focused only on those areas where there may be a higher potential to encounter significant, intact archaeological resources. Specifically, NRG Ohio Pipeline requests your concurrence that the extent of Phase I archaeological survey be limited to a 200-foot corridor in certain areas, for a total of approximately 28-acres north of Interstate 80 and approximately 175-acres south of Interstate 80 (as indicated on the attached Exhibit A maps as the 'archaeological survey area'). We also request your concurrence that a Phase I architectural history survey for the proposed route is not necessary, given the Project's location and description.

I. BACKGROUND AND PROJECT OVERVIEW

The Avon Lake Power Plant is a 734 MW coal-fired generating facility located in Avon Lake, Ohio ("Power Plant").[1] The Power Plant is owned by NRG Power Midwest LP, which is a subsidiary of NRG Energy, Inc. ("NRG"). The Power Plant was slated for retirement by the facility's prior owner as a result of significant expenditures required to meet increasingly stringent environmental requirements. NRG has decided to move ahead with a gas addition project, which will keep the facility in operation on natural gas beyond its planned deactivation date ("Avon Lake Gas Addition Project" or "Project"). To add natural gas as a fuel supply for the Power Plant, an approximately 20-mile natural gas pipeline must be designed, permitted and constructed. The Avon Lake Gas Addition Project will bring environmental, economic, employment and electric supply reliability benefits to the State. The expected commercial operation date for the Project is April 2016.

NRG Ohio Pipeline is proposing to install either a 20-inch or 24-inch diameter high-grade steel natural gas pipeline entirely in Lorain County that will extend approximately 20-miles south from the Avon Lake Power Plant, along the Lake Erie shoreline, to the existing Dominion East Ohio Gas Pipeline. The proposed Dominion Pipeline tap location is located west-southwest of the Village of Grafton. The Proposed Project Route is the most feasible direct route between these two points after balancing all factors, including environmental, geographic, cultural, social and constructability considerations.

Only 1,623 feet of the proposed Pipeline Project will be aboveground. The Pipeline Project will require a permanent (operation and maintenance) ROW of 50-feet in width and a temporary (construction) ROW of 50-feet to accommodate construction activities. Additional temporary workspace areas ("TWAs") outside of the 100-foot construction ROW are anticipated for short durations for construction staging areas and special construction techniques for activities such as waterbody, wetland and road/rail crossings, and horizontal directional drilling. The setback distances of TWAs would be established on a site-specific basis. Existing public and private roads would be utilized for access to most of the construction ROW; however, 5-miles (or 26,156-feet) of 30-foot-wide temporary access roads are anticipated. Additionally, permanent metering and regulating stations (1 of each) will be required, each comprising approximately 1-acre.

The area of potential effect ("APE") encompasses approximately 290-acres and includes the combined permanent and temporary ROWs, TWAs, temporary access roads and the permanent metering and regulating stations.

---

[1] The Power Plant also has one oil-fueled unit.

The proposed Pipeline Project will require siting approval from the Ohio Power Siting Board ("OPSB") and additional approvals from other state and federal agencies, including a Section 404 permit from the U.S. Army Corps of Engineers.

II. RECOMMENDED SURVEY AREAS

Phase I Archaeological Survey

Environmental Resources Management ("ERM") reviewed the proposed Pipeline Route in OHPO's online mapping system in February 2014. Results from the database query indicated that eight archaeological sites, consisting of prehistoric artifacts, were previously recorded within 0.25-miles of the Proposed Project Route, one of which is crossed by the Proposed Project Route. However, none of the eight archaeological sites are known to be already listed or eligible for inclusion in the National Register of Historic Places ("NRHP"). Further, the integrity of these sites, or whether or not they remain intact, is unknown.

As discussed herein and as demonstrated on Exhibit A, the majority of the Proposed Pipeline Route (almost 60%) will be located in or along previously disturbed ROWs or along existing developed areas. The portion of the Pipeline Project north of Interstate 80 is more developed and hence subject to greater prior disturbance than the portion of the Pipeline Project south of the interstate. South of Interstate 80, the Proposed Pipeline Route mostly diverges from existing ROWs into undeveloped areas in an effort to minimize the potential for impact to wetlands and to reduce the extent of tree removal required. Based on both a desktop and field delineation of wetlands, almost 30% of the Proposed Project Route will cross wetlands. Areas that would have a higher potential to encounter significant, intact archaeological resources would include those in upland (non-wetland) areas that have not been previously disturbed by the installation and operation of existing utilities or other infrastructure, or by any other form of land development.

Because the majority of the Proposed Pipeline Route is located in or along areas that have been previously disturbed and given the prevalence of wetlands, only a portion of the Pipeline Project will affect areas that may have a higher potential to encounter significant, intact archaeological resources. ERM recommends a Phase I archaeological survey be conducted within a 200-foot-corridor for only these areas. This focused extent of Phase I archaeological survey would comprise approximately 28-acres north of Interstate 80 and approximately 175-acres south of Interstate 80. Additional detail supporting our recommendation as to the focused extent of the Phase I archaeological survey is provided below:

- Approximately six miles of the Proposed Pipeline Route north of Interstate 80 parallels a Columbia Gas of Ohio proposed natural gas pipeline for which a

Phase I and II cultural resources survey was completed. The survey did not identify any archaeological sites in this area.

- A sanitary sewer line was recently constructed along the same general corridor as the Proposed Project Route (Lorain County Rural Wastewater District, Phase 1 Wastewater Collection and Treatment Improvements Project). The Proposed Project Route parallels this sanitary sewer line for approximately 0.5-miles north of Interstate 90 and an additional 5-miles from French Creek Road (just south of Interstate 90) to Interstate 80. ERM has reviewed the environmental report submitted to the Ohio Rural Community Assistance Program and associated consultation letters with the OHPO for this project. No cultural resources surveys were completed for this project because OHPO had determined that much of the area along the intended route appeared to be previously disturbed given the presence of an existing electric transmission line and previously surveyed gas line.

Architectural History Survey

As previously identified, ERM reviewed the Proposed Pipeline Route in OHPO's online mapping system in February 2014. Eight previously recorded architectural historic properties (all being structural properties) within 0.25-miles of the Proposed Pipeline Route were identified as a result of the database query. Seven of the eight properties are not eligible for inclusion in the NRHP and one property, the Peter Miller House, is listed on the NRHP.

However, the underground portions of the pipeline would be constructed in a way that minimizes any changes to the location, setting, design, materials, and workmanship of any existing aboveground properties along the Proposed Pipeline Route. Given its diminutive size and prominence and lack of significant aboveground features compared to other more prominent aboveground features adjacent to the Proposed Pipeline Route, such as existing utilities and other land uses, the permanent visual effects that the proposed pipeline would have on any aboveground properties would be minimal. Areas subject to temporary ground disturbance during construction will be restored to their pre-construction conditions, to the extent feasible.

As it relates to the aboveground portion of the pipeline, this portion of the Project would be located in a highly industrialized area near the Avon Lake Power Plant. The proposed aboveground portion of the pipeline is compatible with its surrounding setting in terms of design, scale, size, materials and use, and would serve to allow for the Avon Lake Power Plant to maintain its use and function as a power plant. This addition/alteration reflects the ongoing importance of the Avon Lake Power Plant as a critical link in meeting the growing energy needs of the regional area.

Given the overall lack of anticipated impacts to any aboveground properties and the compatibility of the aboveground portion of the Proposed Pipeline Route with its surrounding area, ERM recommends no Phase I architectural history survey be required for the Project.

III. CONCLUSION

We request your written concurrence as to the survey extents described above. To reiterate our recommended survey extents:

- we recommend a Phase I archaeological survey of approximately 28-acres north of Interstate 80 and approximately 175-acres south of Interstate 80; and

- we recommend that no Phase I architectural history survey be required.

In order to meet the Project schedule, we have already commenced field investigations. We are available to meet with you to discuss the proposed Pipeline Project should that be preferred.

Thank you in advance for your time and consideration. If you have any questions or require additional information about the proposed Project, please do not hesitate to contact me at 443-207-0519, or via email at andrew.bielakowski@erm.com.

Sincerely,



Andrew Bielakowski
Principal Investigator

Enclosures: Exhibit A, Maps

cc: Nathan Young, Ohio Historic Preservation Office
Nate Rozic, NRG
Doni Murphy, ERM

Phase I Archaeological Investigation for NRG Ohio Pipeline Company's Proposed Pipeline Project

Lorain County, Ohio

Lead Public Agency:
Ohio Power Siting Board

Prepared For:
NRG Ohio Pipeline Company LLC
211 Carnegie Center
Princeton, New Jersey 08540

Prepared By:
Environmental Resources Management
1701 Golf Road, Suite 1-700
Rolling Meadows, IL 60008

Principal Investigators and Report Authors:
Andrew Bielakowski, M.A.
Mark Doperalski, M.A., RPA

July 2014

ABSTRACT

In May 2014, Environmental Resources Management ("ERM") conducted a Phase I Archaeological Survey on behalf of NRG Ohio Pipeline Company LLC ("NRG Ohio Pipeline") for a proposed natural gas pipeline. NRG Ohio Pipeline is developing an approximately 20-mile natural gas pipeline in Lorain County, Ohio in order to provide natural gas as a fuel source to the Avon Lake Power Plant, which is owned by an affiliate of NRG Ohio Pipeline (the "Pipeline Project" or "Project"). The Avon Lake Power Plant is a 734 MW coal-fired generating facility located in Avon Lake, Ohio ("Power Plant").[1] The Power Plant is owned by NRG Power Midwest LP, which is a subsidiary of NRG Energy, Inc. ("NRG"). The Power Plant was slated for retirement by the facility's prior owner as a result of significant expenditures required to meet increasingly stringent environmental requirements. NRG has decided to move ahead with a gas addition project, which will keep the facility in operation on natural gas beyond its planned deactivation date (the "Avon Lake Gas Addition Project"). To add natural gas as a fuel supply for the Power Plant, the proposed natural gas pipeline must be designed, permitted and constructed. The Avon Lake Gas Addition Project will bring environmental, economic, employment and electric supply reliability benefits to the State. The expected operation date for the pipeline is April 2016.

NRG Ohio Pipeline is proposing to install a 24-inch diameter high-grade steel pipeline that will extend south from the Avon Lake Power Plant, which is located on the Lake Erie shoreline in the City of Avon Lake, to a proposed supply tap location west-southwest of the Village of Grafton (the "Proposed Route"). The Proposed Route is the most feasible direct route between these two points upon balancing all factors, including environmental, geographic, cultural, social and constructability considerations, as well as landowner concerns.

Approximately 1,623 feet of the proposed pipeline will be aboveground. The pipeline will require a permanent (operation) right-of-way ("ROW") of 50-feet in width and a temporary (construction) ROW of 100-feet. Additional temporary workspace areas ("TWAs") outside of the 100-foot construction ROW will be needed for short durations in some areas. Existing public and private roads would be utilized for access to most of the construction ROW; however, 5-miles (or 26,156-feet) of 30-foot-wide temporary access roads are anticipated. The required metering and regulating stations will each be approximately 1-acre in size.

The proposed Project will require siting approval from the Ohio Power Siting Board ("OPSB") in accordance with Ohio Administrative Code 4906. Ohio Revised Code 149.53 states that state agencies, such as OPSB, should cooperate and work with the Ohio Historic Preservation Office ("OHPO") during the planning and construction of state-reviewed projects. Therefore, OPSB requires consultation with the OHPO regarding the

[1] The Power Plant also has one oil-fueled unit.

protection of National Register of Historic Places ("NRHP") properties, including any sites that are eligible for listing, or state significant historic properties. The proposed Pipeline Project will require additional approvals from other state and federal agencies, including a Section 404 permit from the U.S. Army Corps of Engineers. Therefore, the proposed Pipeline Project would be subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended.

The Phase I archaeological investigation was conducted within the scope of the Ohio Historic Preservation Office's ("OHPO") *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011) and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (National Park Service [NPS] 1983). The investigation was conducted to identify archaeological resources associated with the Project's Area of Potential Effect ("APE") that may be potentially eligible for inclusion in the NRHP. The APE, for the purposes of this investigation, included all areas of proposed construction activities or other potential ground disturbing activities. The "Project Area" encompassed both the APE and an area extending beyond the APE. This additional area on either side of the anticipated right-of-way was included in the Project Area to allow for flexibility in the event of minor route or workspace adjustments. The Project Area consisted of a 500.63-acre (202.60-hectare) area, which included a 200-ft corridor centered on the centerline of the Proposed Route, as well as anticipated TWAs outside the 200-ft corridor.

The majority of the Project Area (nearly 60 percent) will be located in or along previously disturbed rights-of-way or along existing developed areas. The portion of the Project Area north of Interstate 80 is more developed and subject to greater prior disturbance than the portion of the Project Area south of the interstate. South of Interstate 80, the Project Area mostly diverges from existing ROWs into undeveloped areas in an effort to minimize the potential for impact to wetlands, namely forested wetlands. Based on both a desktop and field delineation of wetlands, nearly 30 percent of the Project Area will cross wetlands. Areas considered to have a high potential to contain significant, intact archaeological resources include those in upland (non-wetland) areas near water sources that have not been previously disturbed by the installation and operation of existing utilities or other infrastructure, or by any other form of land development.

Because the majority of the Project Area is located in or along areas that have been previously disturbed and given the prevalence of wetlands, only a portion of the Project Area falls within areas that were assumed to have a high potential to encounter significant, intact archaeological resources. As a result, a Phase I archaeological survey was only conducted within the portions of the Project Area that occur within these assumed high potential areas (the "Survey Area") (see Appendix A: Survey Results Maps). The Survey Area consisted of 202.59 acres (81.99 hectares). Fieldwork was conducted from May 15 to May 29, 2014. Andrew Bielakowski and Mark Doperalski served as Principal Investigators.

The Survey Area was comprised largely of agricultural lands complimented with a small extent of wooded uplands. A majority of the agricultural lands that occur within the Survey Area consisted of actively cultivated fields exhibiting 50 to 95 percent surface visibility. A small extent of the agricultural lands that occur within the Survey Area consisted of pastureland or open grassland exhibiting little to no surface visibility. The small extent of wooded uplands that occur within the Survey Area also exhibited little to no surface visibility. Pedestrian survey was completed for 190.71 acres (77.18 hectares) and shovel testing was completed for 11.88 acres (4.81 hectares). Shovel tests (133) were excavated in eight areas that were assessed as warranting subsurface investigation.

During the Phase I archaeological survey, ERM identified five newly recorded archaeological sites (Figure 3; Table 5; Appendix A). All five sites (33LN0278, 33LN0279, 33LN0280, 33LN0281, and 33LN0282) are recommended not eligible for listing in the NRHP based on the results of the current investigation. These five sites consist of two lithic isolated finds (33LN0278 and 33LN0282), two sparse lithic scatters (33LN0280 and 33LN0281), and one historic-period site (33LN0279) consisting of a well feature and several drainage ditches. These five newly recorded archaeological sites are described in detail further below and summary information for each is presented in Table 5.

Two additional find spots, AV88.1-1 and AV199-1, were identified during the Phase I archaeological survey. Site AV88.1-1 is a modern-period dump deposit consisting of discarded wood comprised of railroad ties, pallets, and logs at the edge of a clearing. Site AV199-1 is a modern-period dump deposit consisting of large cut slabs of roadway stacked within a wooded area at the edge of a clearing. On average, the large rectangular slabs measure 3.5 meters long by 2.0 meters wide by 0.25 meters thick and consist of steal reinforced concrete overlain with an asphalt surface. The locations of these find spots were noted for due diligence and are depicted on Maps 4 and 6 of Appendix A; however, they were not recorded as official archaeological sites due to the apparent recent nature of the deposits. No further work is recommended prior to construction.

ERM also revisited the single archaeological site (33LN0076) previously identified within the Project Area (Figure 3; Table 5; Appendix A). Site 33LN0076 was reported by an artifact collector (William Sabol) to archaeologists conducting a survey for the proposed Route 20 by-pass in 1977. The site was recorded as an artifact scatter associated with the Archaic and Woodland periods based on information provided by the artifact collector. It appears that the artifact collection was not actually inspected by the archaeologists who recorded the site. Prior to the current investigation, the site area had not been previously investigated by any archaeologist nor had the site been evaluated for inclusion in the NRHP (Ohio Archaeological Site Recording Form 33LN0076; accessible on the OHPO *Online Mapping System*). The current Phase I archaeological investigation identified only two lithic artifacts within the portion of 33LN0076 intersected by the Project Area. The portion of 33LN0076 intersected by the Project Area is recommended not eligible for listing in the NRHP.

Based on the results of the Phase I archeological survey, no further archaeological work is recommended within the Project Area prior to construction. If the Project uncovers resources that might be of archeological interest within the Project Area during construction, the OHPO should be contacted immediately. If human remains should be encountered during construction activities, all ground disturbing activity must cease and local law enforcement and the OHPO must be notified. Additionally, should the Project Area be adjusted beyond the area that has been surveyed, additional Phase I archaeological survey may be completed in advance of construction, to the extent necessary or appropriate.

TABLE OF CONTENTS

ABSTRACT i
LIST OF FIGURES vi
LIST OF TABLES vi
1.0 INTRODUCTION 7
1.1 PROJECT DESCRIPTION 7
1.2 AGENCY INVOLVEMENT AND LEGISLATIVE REQUIREMENTS 9
1.3 PURPOSE AND NATURE OF THE ARCHAEOLOGICAL RESOURCES INVESTIGATION 9
2.0 ENVIRONMENTAL HISTORY OVERVIEW 10
2.1 GLACIAL HISTORY, GEOLOGY, AND HYDROLOGY 10
2.2 CLIMATE 10
2.3 SOILS 11
2.4 FLORA AND FAUNA 13
3.0 CULTURAL HISTORY OVERVIEW 15
3.1 PREHISTORIC PERIOD 15
3.1.1 Paleoindian Period 15
3.1.2 Archaic Period 15
3.1.3 Woodland Period 16
3.2 PROTO-HISTORIC PERIOD 17
3.3 HISTORIC PERIOD 18
3.3.1 Lorain County 20
4.0 METHODS 21
4.1 OBJECTIVES 21
4.2 AREA OF POTENTIAL EFFECT (APE) 21
4.3 ARCHAEOLOGICAL SURVEY AREA 21
4.4 ARCHAEOLOGICAL BACKGROUND RESEARCH 22
4.5 ARCHAEOLOGICAL SURVEY METHODS 22
4.5.1 Pedestrian Survey 22
4.5.2 Shovel Testing 22
4.5.3 Site Delineation 23
4.5.4 Field Documentation 23
4.6 LABORATORY METHODS 23
4.7 EVALUATION 24
5.0 LITERATURE REVIEW 25
5.1 PREVIOUS ARCHAEOLOGICAL SURVEYS 25
5.2 PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES 28
6.0 ARCHAEOLOGICAL SURVEY RESULTS 29
6.1 SURVEY RESULTS 29
6.1.1 New Archaeological Sites Recommended as Not Eligible 31
6.1.1.1 Site 33LN0278 31
6.1.1.2 Site 33LN0279 33
6.1.1.3 Site 33LN0280 38
6.1.1.4 Site 33LN0281 43
6.1.1.5 Site 33LN0282 46
6.1.2 Previously Identified Archaeological Sites – Portion within Project Area Recommended as Not Eligible 49
6.1.2.1 Site 33LN0076 49
7.0 SUMMARY AND RECOMMENDATIONS 53
8.0 REFERENCES CITED 54

APPENDIX A: SURVEY RESULTS MAPS
APPENDIX B: ARCHAEOLOGICAL SHOVEL TESTING DESCRIPTIONS
APPENDIX C: ARTIFACT CATALOG
APPENDIX D: PROJECT PERSONNEL

LIST OF FIGURES

FIGURE 1. PROJECT LOCATION 8
FIGURE 2. PREVIOUS ARCHAEOLOGICAL STUDIES AND SITE LOCATIONS 27
FIGURE 3. PHASE I ARCHAEOLOGICAL SURVEY RESULTS 30
FIGURE 4. OVERVIEW OF SITE 33LN0278; FACING SOUTH 31
FIGURE 5. SITE MAP: 33LN0278 32
FIGURE 6. HISTORIC-PERIOD WELL FEATURE IDENTIFIED AT SITE 33LN0279; FACING SOUTH 34
FIGURE 7. EXAMPLE OF DITCH SYSTEM FEATURES IDENTIFIED AT 33LN0279; FACING NORTHWEST 34
FIGURE 8. SITE MAP: 33LN0279 35
FIGURE 9. EXAMPLE OF SOIL STRATIGRAPHY AT SITE 33LN0279; FACING SOUTH 36
FIGURE 10. 1874 PLAT MAP WITH SITE 33LN0279 OVERLAY 37
FIGURE 11. 1896 PLAT MAP WITH SITE 33LN0279 OVERLAY 38
FIGURE 12. SITE MAP: 33LN0280 39
FIGURE 13. OVERVIEW OF SITE 33LN0278; FACING SOUTH 40
FIGURE 14. BIFACIAL PREFORM IDENTIFIED AT SITE 33LN0280 41
FIGURE 15. EXAMPLE OF SOIL STRATIGRAPHY AT SITE 33LN0280; FACING NORTH 41
FIGURE 16. SITE MAP: 33LN0281 44
FIGURE 17. OVERVIEW OF SITE 33LN0281; FACING NORTH 45
FIGURE 18. BIFACIAL TOOL IDENTIFIED AT SITE 33LN0281 45
FIGURE 19. SITE MAP: 33LN0282 47
FIGURE 20. OVERVIEW OF SITE 33LN0282; FACING NORTH 48
FIGURE 21. MODIFIED FLAKE IDENTIFIED AT SITE 33LN0282 48
FIGURE 22. SITE MAP: 33LN0076 50
FIGURE 23. OVERVIEW OF SITE 33LN0076 INTERSECTED BY PROJECT AREA; FACING SOUTH 51
FIGURE 24. EXAMPLE OF SOIL STRATIGRAPHY AT SITE 33LN0076; FACING WEST 52

LIST OF TABLES

TABLE 1. SOIL SERIES ENCOUNTERED WITHIN THE PROJECT AREA 11
TABLE 2. PREVIOUS ARCHAEOLOGICAL SURVEYS WITHIN THE PROJECT AREA 25
TABLE 3. PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL SITES WITHIN THE PROJECT AREA 28
TABLE 4. PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL SITES WITHIN ONE-MILE OF THE PROJECT CENTERLINE 28
TABLE 5. ARCHAEOLOGICAL SITES IDENTIFIED WITHIN THE PROJECT AREA 31
TABLE 6. ARTIFACT ASSEMBLAGE BY TYPE AND COUNT AT 33LN0280 42
TABLE 7. LITHIC RAW MATERIAL REPRESENTATION BY COUNT AND MASS AT 33LN0280 42

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

In May 2014, Environmental Resources Management ("ERM") conducted a Phase I Archaeological Survey on behalf of NRG Ohio Pipeline Company LLC ("NRG Ohio Pipeline") for a proposed natural gas pipeline. NRG Ohio Pipeline is developing an approximately 20-mile natural gas pipeline in Lorain County, Ohio in order to provide natural gas as a fuel source to the Avon Lake Power Plant, which is owned by an affiliate of NRG Ohio Pipeline (the "Pipeline Project" or "Project"). The Avon Lake Power Plant is a 734 MW coal-fired generating facility located in Avon Lake, Ohio ("Power Plant").[1] The Power Plant is owned by NRG Power Midwest LP, which is a subsidiary of NRG Energy, Inc. ("NRG"). The Power Plant was slated for retirement by the facility's prior owner as a result of significant expenditures required to meet increasingly stringent environmental requirements. NRG has decided to move ahead with a gas addition project, which will keep the facility in operation on natural gas beyond its planned deactivation date (the "Avon Lake Gas Addition Project"). To add natural gas as a fuel supply for the Power Plant, the proposed natural gas pipeline must be designed, permitted and constructed. The Avon Lake Gas Addition Project will bring environmental, economic, employment and electric supply reliability benefits to the State. The expected operation date for the pipeline is April 2016.

NRG Ohio Pipeline is proposing to install a 24-inch diameter high-grade steel pipeline that will extend south from the Avon Lake Power Plant, which is located on the Lake Erie shoreline in the City of Avon Lake, to a proposed supply tap location west-southwest of the Village of Grafton (the "Proposed Route"). The Proposed Route is the most feasible direct route between these two points upon balancing all factors, including environmental, geographic, cultural, social and constructability considerations, as well as landowner concerns.

Approximately 1,623 feet of the proposed pipeline will be aboveground. The pipeline will require a permanent (operation) right-of-way ("ROW") of 50-feet in width and a temporary (construction) ROW of 100-feet. Additional temporary workspace areas ("TWAs") outside of the 100-foot construction ROW will be needed for short durations in some areas. Existing public and private roads would be utilized for access to most of the construction ROW; however, 5-miles (or 26,156-feet) of 30-foot-wide temporary access roads are anticipated. The required metering and regulating stations will each be approximately 1-acre in size.

---

[1] The Power Plant also has one oil-fueled unit.

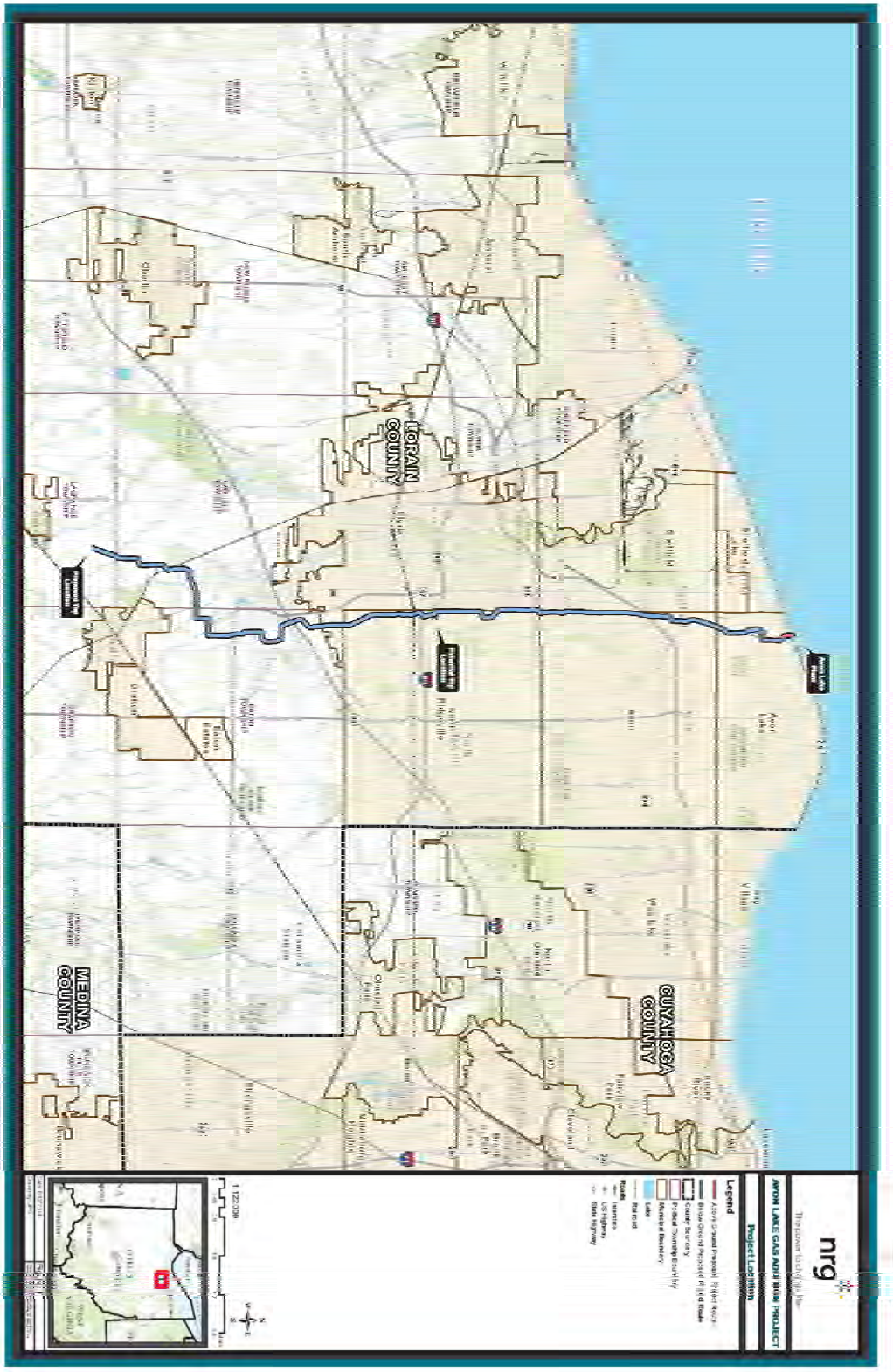


FIGURE 1. PROJECT LOCATION

1.2 AGENCY INVOLVEMENT AND LEGISLATIVE REQUIREMENTS

The proposed Project will require siting approval from the Ohio Power Siting Board ("OPSB") in accordance with Ohio Administrative Code 4906. Ohio Revised Code 149.53 states that state agencies, such as OPSB, should cooperate and work with the Ohio Historic Preservation Office ("OHPO") during the planning and construction of state-reviewed projects. Therefore, OPSB requires consultation with the OHPO regarding the protection of National Register of Historic Places ("NRHP") properties, including any sites that are eligible for listing, or state significant historic properties. The proposed Pipeline Project will require additional approvals from other state and federal agencies, including a Section 404 permit from the U.S. Army Corps of Engineers. Therefore, the proposed Pipeline Project would be subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended.

1.3 PURPOSE AND NATURE OF THE ARCHAEOLOGICAL RESOURCES INVESTIGATION

The Phase I archaeological investigation was conducted within the scope of the Ohio Historic Preservation Office's ("OHPO") *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011) and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (National Park Service [NPS] 1983). The investigation was conducted to identify archaeological resources associated with the Project's Area of Potential Effect ("APE") that may be potentially eligible for inclusion in the NRHP. The APE, for the purposes of this investigation, included all areas of proposed construction activities or other potential ground disturbing activities.

The Phase I archaeological investigations consisted of a literature search of documents of previously recorded sites within one mile (1.6 km) of the Project centerline and of previously conducted surveys within the Project Area, as discussed below. The archaeological investigation also consisted of a Phase I Archaeological Survey to identify any intact archaeological sites associated with the Project Area. During May 2014, approximately 202.59 acres (81.99 hectares) were surveyed. The Project Area is located entirely in Lorain County, Ohio, traversing the communities and townships of Avon Lake, Avon, Elyria, North Ridgeville, Eaton, Carlisle, and LaGrange, from north to south. The majority of the Proposed Route crosses private lands located outside of municipal areas. Land use types along the Proposed Route mostly consist of residential, industrial, and other mixed uses, with some agricultural use along the southern portion of the route.

This report describes survey methodology, environmental and cultural settings, previous investigations, results, and recommendations for the Project.

2.0 ENVIRONMENTAL HISTORY OVERVIEW

This chapter is designed to give a brief overview of the environmental landscape of the Project Area.

2.1 GLACIAL HISTORY, GEOLOGY, AND HYDROLOGY

The Project Area falls within the Erie Lake Plain and Mautnee Lake Plain Physiographic Regions within the Huron-Erie Lake Plains Section of the Central Lowlands Province (Brockman 1998). The topography of the region can best be described as a relatively flat to gently rolling lake plain dissected by numerous drainages and exhibiting large tracts of wetland.

The Project Area was covered by Illinoisan glaciation more than 75,000 years ago, and by Wisconsin glaciation approximately 15,000 to 20,000 years ago. Soils generally consist of clays formed in glacial drift. Surface drift in Lorain County consists of three predominant till deposits: Hiram till, Mogadore till, and an unnamed till of the Killbuck lobe (Ernst and Musgrave 1976). The underlying bedrock of the Project Area is primarily comprised of shale and sandstone of the Olentangy and Ohio Formation of the Devoniam System (ODNR 2006).

The Project Area is located within the Black-Rocky watershed. The area is drained by several intermittent streams and ditches as well as French Creek. French Creek runs west for a short distance where it drains into the Black River. The Black River runs northwesterly until it empties into Lake Erie at Lorain. In addition to crossing various streams and ditches, significant waterbodies crossed by the Project Area include French Creek and the East Branch of the Black River (USGS 2014).

2.2 CLIMATE

At the beginning of the Holocene period, much of the Midwest was dominated in summer by cool/dry air masses from Canada; however, as the Laurentide ice sheet began to retreat during the early Holocene, strong Pacific and Gulf air masses became increasingly dominant during the summer months. The warmth and dryness brought on by the Pacific and Gulf air masses reached a maximum at about 7200 B.P., after which came a period of small floods, likely brought about by convectional thunderstorms. This period, which ended around 6000 B.P., ushered in a period of larger floods and general cooling (Knox 1983). The vegetation “may be related directly to climatic controls such as storms and floods rather than indirectly to broad-scale [Holocene] changes in vegetative cover” (Knox 1983:33). After the complete retreat of the Laurentide ice sheet, the large differences in summer temperatures from Canada to the Gulf Coast no longer existed. Temperatures in the late Holocene favored those of the present-day regional and seasonal variations from moderately warm in summer to reasonably cold in the winter as both the Canadian and Gulf air masses were allowed to penetrate deep within the region (Knox 1983).

Today, warm, humid summers and cold, dry winters characterize the mid-continental climate of the Project Area, greatly influenced by its location off of Lake Erie. Average winter temperature in Lorain County within the Project Area is 29° Fahrenheit (F), with a winter average daily minimum temperature of 21° F. The summer average temperature is 71° F, with an average daily maximum temperature of 83° F. Total annual precipitation is an average of 35 inches per year, with 64 percent of the precipitation falling between March and September. Average annual snowfall is approximately 43 inches (Ernst and Musgrave 1976).

2.3 SOILS

General soil series encountered within the Project Area are listed below in Table 1 (Ernst and Musgrave 1976; USDA-NRCS 2014). Detailed descriptions of soils encountered during subsurface excavations are discussed in the relevant sections below in Section 6.

TABLE 1. SOIL SERIES ENCOUNTERED WITHIN THE PROJECT AREA

Soil Series	Description
Mahoning	Very deep somewhat poorly drained soils formed in low-lime till on till plains of Wisconsin age. The till is derived primarily from shale and siltstone, with minor amounts of limestone and crystalline erratics. Slope is primarily 0 to 6 percent, but ranges to 15 percent.
Udorthents	Moderately well drained to excessively drained soils that have been disturbed by filling, and areas that are disturbed or covered by development. Slopes range from 0 to 10 percent but are dominantly 0 to 5 percent.
Orrville	Very deep, somewhat poorly drained soils formed in loamy alluvium and are on flood plain steps on flood plains. They formed in alluvium from upland areas of low-lime drift, and from areas of sandstone, siltstone, shale, and limestone. They are in or bordering areas of Wisconsinan or Illinoian glaciation. Slope ranges from 0 to 3 percent.
Miner	Very deep, very poorly drained soils formed in low-lime glacial till principally derived from acid shale on lake plains which have been modified by lake action, and in shallow depressions and narrow drainageways on till plains. They formed in till principally derived from acid shale. The slope gradient ranges from 0 to 2 percent.
Lorain	Very deep, very poorly drained soils that formed in Wisconsin age fine-textured glaciolacustrine sediments. These soils formed in Wisconsin age glaciolacustrine sediments in depressions on lake plains, terraces, and till plains. Slope ranges from 0 to 2 percent.
Fitchville	Very deep, somewhat poorly drained soils formed in stratified Wisconsinan age glaciolacustrine sediments that are derived mainly from materials high in sandstone and shale and are on summits and shoulders on lake plains and are on treads on terraces. Slope ranges from 0 to 12 percent.
Mermill	Very deep, very poorly drained soils on lake plains, and less

Soil Series	Description
	commonly on till plains of late Wisconsinan age. They have a plane or concave surface with a slope gradient of 0 to 2 percent.
Oshtemo	Very deep, well drained soils formed in stratified loamy and sandy deposits on outwash plains, valley trains, moraines, and beach ridges. These soils formed in stratified loamy and sandy deposits that have a high content of quartz and contain variable amounts of material derived from igneous and metamorphic rocks, sandstone, limestone, and dolomite. Slope ranges from 0 to 55 percent.
Holly	Very deep, very poorly and poorly drained soils formed on broad flat areas and in slight depressions on flood plains receiving alluvium from upland areas of low-lime drift and noncalcareous sandstone and shale. Slope ranges from 0 through 3 percent.
Chili	Very deep, well drained soils on outwash plains, terraces, kames, and beach ridges. The soils formed in Wisconsinan age stratified outwash derived largely from noncalcareous sandstone and shale that contains a high amount of quartz gravel. Commonly, the outwash is mantled with silt. The slope gradient typically is 0 to 18 percent, but the range is up to 70 percent.
Haskins	Very deep, somewhat poorly drained soils that are moderately deep or deep to dense till on lake plains and on till plains of late Wisconsinan age. They formed in loamy water-sorted or glaciolacustrine material and in the underlying till. These soils are on lake plains and till plains. Slope ranges from 0 to 6 percent.
Lobdell	Very deep, moderately well drained soils that formed in recent loamy alluvium. These soils are on nearly level flood plains receiving loamy alluvium from upland areas of sandstone, shale, and low lime glacial drift. Slope ranges from 0 to 3 percent.
Mentor	Very deep, well drained soils formed in silty lacustrine material. These soils are on threads and risers on terraces, dissected lake plains, and silty outwash plains. These soils are formed in stratified glaciolacustrine or terrace deposits derived from materials high in sandstone and shale. Slope ranges from 0 to 70 percent.
Luray	Very deep, very poorly drained soils formed in silty lacustrine material or slack water sediments. These soils are on slight depressions or on level areas on lake plains, terraces, outwash plains, and in small local areas on till plains. Slope ranges from 0 to 2 percent.
Sebring	Very deep, poorly drained soils formed in stratified Wisconsinan age glaciolacustrine sediments and are on broad flats and depressions on lake plains and slackwater terraces. Slope ranges from 0 to 2 percent.
Trumbull	Deep, poorly drained soils formed in low-lime glacial till. These soils are on level to gently sloping and depressional portions of till plains. Slopes are dominantly less than 4 percent but range to 6 percent.
Rawson	Very deep, moderately well drained soils that formed in loamy sediments and till on till plains, outwash plains and

Soil Series	Description
	lake plains of Wisconsinan age. They are moderately deep or deep to dense till. Slope ranges from 0 to 12 percent.
Bogart	Very deep, moderately well drained soils that formed in Wisconsinan age stratified outwash deposits and are on convex slopes in areas of low relief on stream terraces, beach ridges, and outwash plains. Slopes range from 0 to 12 percent.
Tioga	Very deep, well drained soils formed in alluvium on higher positions in flood plains. These soils formed in recent alluvium, mainly from areas of sandstone, siltstone, and shale. Slope ranges from 0 to 3 percent.
Ellsworth	Very deep, moderately well drained soils formed in low-lime till on plains of Wisconsin age typically with a with a calcium carbonate equivalent of between 5 and 15 percent. The till is derived from shale and sandstone, with minor amounts of limestone and crystalline rocks. Slope ranges from 0 to 70 percent.
Allis	Moderately deep, poorly drained soils on bedrock controlled uplands. They are on till plains and, less frequently, lake plains. The soils are formed in a thin mantle of glacial till dominated by, and underlain by, acid shale which, in some places is interbedded with siltstone and sandstone. Slope is 0 to 2 percent.
Jimtown	Very deep, somewhat poorly drained soils formed in Wisconsinan Age stratified outwash deposits on stream terraces, outwash terraces, outwash plains, and beach ridges. Slope ranges from 0 to 6 percent.

2.4 FLORA AND FAUNA

Following the initial retreat of the Laurentide Ice Sheet, the Late Glacial period (14,000-10,000 B.P.) exhibited warm and dry conditions allowing for spruce parkland and mixed parkland communities to thrive, representing a mosaic of diverse plant communities (Grimm and Jacobson 2004). Environmentally sensitive species of voles and lemmings as well as large mammals and megafauna existed together in the Late Glacial period (Custer 1985). A mix of woodland musk-ox, mammoth, mastodon, giant moose, woodland peccaries, white-tailed deer, caribou, elk, and giant beaver, among other species, would have dominated the landscape and been prime game resources. Later period megafaunal extinctions would have forced native peoples to intensify the procurement of animals of smaller sizes, but lessening the need to travel greater distances to exploit these resources. Transition zones of grassland and woodland would have been the focus of the greatest variety of these types of species. However, low order streams, bogs, ponds, and swamps would also have been high potential game resource areas (Anderson 2001; Custer 1985).

The Pre-boreal/Boreal period (10,000-8,000 B.P.) saw a reduction of open grassland and a spread of boreal forests with spruce and pine as the dominant species, although some oak forests would have existed at this time. The spread of coniferous forest would have dramatically lowered the opportunities for megafauna and other large fauna to thrive. As

a result, poorly drained swampy areas and other waterbodies would have been the focus of game animals such as deer, moose, and elk (Anderson 2001). The warming trend of the Atlantic climatic period (8,000-5,000 B.P.) was characterized by greater precipitation and an expansion of mesic forests, starting with hemlock and followed by oak, which became the dominant species by approximately 5,000 B.P. (Grimm and Jacobson 2004). During this time, fauna would have relatively mirrored that of the present day, with deer and turkey as major game animals; however, locally available plant species that were later domesticated may have begun to be intensively collected at this time (Anderson 2001; Custer 1985).

Dramatic changes in flora and fauna was experienced during the Sub-boreal climatic period (5,000-3,000 B.P.) as moisture increased and temperature slowly decreased. These changes were evidenced by an increase in nut bearing trees such as hickory and an expansion of grasslands (Grimm and Jacobson 2004). These types of changes would have favored species such as deer and gaming birds, such as turkey. Hydrologic fluctuations due to the increase in moisture and precipitation would have also affected riverine and estuarine systems and, therefore, the species in them. Species with limited tolerance to temperature and salinity fluctuations, such as oysters and anadromous fish, would have been affected (Anderson 2001; Custer 1985).

The climate of the sub-Atlantic period (3,000 B.P. to Present) saw an increase in moisture and cooler temperatures and led to a relative approximation of modern conditions. Flora would have represented vast forests of largely white pine with smaller amounts of basswood and yellow birch. Roots, tubers, berries, and nuts would have supported white-tailed deer, black bear, turkey, cottontail, beaver, raccoon, elk, woodchuck, gray squirrel, ruffed grouse, and migratory water fowl, which would have been important species to the Project Area's native populations. This area also supports several species of reptiles, amphibians, and native fish populations, which would have equally been important to diversified animal resource procurement. Previously collected plant species, now heavily domesticated during this period, would have functioned as primary plant resources for native populations (Anderson 2001; Custer 1985).

3.0 CULTURAL HISTORY OVERVIEW

3.1 PREHISTORIC PERIOD

The sequence of precontact cultural traditions is divided into generalized periods based on material culture (e.g., projectile-point types, ceramic types) and subsistence adaptations (e.g., hunting and gathering, horticulture, and agriculture). Other sources of information, including oral traditions and language studies, have also been used to "type" cultural traditions. The generalized periods presented here are Paleoindian, Archaic, and Woodland.

3.1.1 Paleoindian Period

The Paleoindian period (ca. 15,000-9,000 B.P.) is traditionally considered the earliest period of human occupation in Ohio. Prior to 15,000 B.P., Ohio was largely covered by the Wisconsin glacier. As the ice receded and Pleistocene megafauna moved into Ohio, so did Paleoindians. The Paleoindians were organized in small nomadic hunting and gathering bands, and brought with them the technology and skill necessary to exploit the local resources (Blank 1982). Archaeological remains suggest that seasonal rounds were followed, exploiting hill, bluff, and terrace locations, and, very rarely, caves as campsites.

The Early Paleoindian period tool kit includes fluted points such as Clovis and Cumberland types. Archaeologically, fluted points are concentrated along the Ohio, Scioto, and Miami Rivers and in Coshocton County, where Upper Mercer chert could be quarried (Seeman and Prufer 1982). The Late Paleoindian or Plano period tool kit included unfluted lanceolate projectile points of the parallel-flake tradition, and stemmed lanceolates such as Scottsbluff-Eden types (Prufer and Baby 1963). The Plano period shows transition between the Early Paleoindian period and the Archaic period, retaining much of the tool kit of the former, but shifting to the subsistence patterns of the latter, as Pleistocene megafauna became unavailable (Mason 1962, Prufer and Baby 1963). Archaeological remains of the Plano period are concentrated in northwestern Ohio.

3.1.2 Archaic Period

The Archaic period in Ohio (ca. 10,000-2,500 B.P.) shows a continuation of Paleoindian lifeways, modified to accommodate the disappearance of Pleistocene megafauna. A wide variety of small fauna were exploited within a more restricted seasonal round. Archaic tool kits differ significantly from Paleoindian tool kits. Projectile points of stemmed, corner-notched, and bifurcate base forms prevail (Prufer and Long 1983).

The Early Archaic (10,000-8,000 B.P.) tool kit shows a continued emphasis on hide working and hunting. New to the tool kit are heavy wood-working and groundstone tools, which did not become common until later in the Archaic. Dalton, Kirk/Thebes, and Bifurcate projectile point types are common (Shane 1967; Broyles 1970). Most Kirk component sites in Ohio occur in riverine settings (Blank 1970).

Wood-working tools, groundstone tools, and atlatl weights become more prevalent in the Middle Archaic (8,000-5,500 B.P.) tool kit (Fiedel 1987). Middle Archaic sites also show an apparent increase in fishing, as suggested by net sinkers (Fowler 1959; Funk 1978; Griffin 1983). The prevalent projectile point types of the Middle Archaic in Ohio are Eva, Morrow Mountain, Big Sandy, Kanawha, and Stanley stemmed (Justice 1987).

Regional diversity flourishes in the Late Archaic (5,500-3,000 B.P.) archaeological record (Funk 1983; Griffin 1983; Feidel 1987). Populations grew during the Late Archaic, as regional cultures adapted to local conditions. One such local adaptation is the Laurentian Tradition, first defined in the St. Lawrence Valley of New York. The Laurentian Tradition is characterized by broad-bladed notched projectile points, biface knives, and end scrapers (Tuck 1977). In Ohio, Brewerton and Vosburg projectile points are common to Laurentian sites (Shane 1967; Justice 1987). Modern climate, environment, flora, and fauna were established in Ohio by ca. 3,000B.P. (Blank 1970; Funk 1978).

Archaeological remains of Archaic settlements suggest repeated seasonal use, and include more specialized activity sites and rockshelters than evident during the Paleo-Indian period. During the Late Archaic, semi-permanent settlements with large populations appear in the archaeological record. Exotic grave goods recovered from human burials suggest that long-distance trade networks were available (Blank 1982).

3.1.3 Woodland Period

The transition from the Archaic to the Woodland period in Ohio is evidenced archaeologically by broad spear points, including Perkiomen, Lehigh, and Ashtabula types (Shane 1967; Justice 1987). The Woodland period (ca. 3,000 B.P.-AD 1600) is distinguished archaeologically by continuously occupied habitation sites, horticulture, agriculture, and grit-tempered cord-marked ceramics. Burial practices are more elaborate than during the Archaic period.

The Early Woodland or Adena Phase (ca. 3,000-2,100 B.P.) is characterized by elaborate mortuary practices and circular earthworks. The Adena Phase is believed to have developed in the Ohio River Valley and spread to Indiana, Kentucky, and West Virginia. Blocked end tubular pipes, gorgets, Adena projectile points, copper items, and ceramics are among items typically recovered from Adena Phase sites. Adena people subsisted by hunting, plant collecting, fishing, and cultivating squash and corn (Blank 1982). The number and distribution of Adena mounds suggest that small social groups exploited small local territories (Seeman 1984).

The Middle Woodland, or Hopewellian Phase (ca. 2,100 B.P. to AD 600), had a wide-spread influence, centered in the Sciota River Valley in southern Ohio, Indiana, and Illinois. The Hopewellian Phase is characterized by burial mound clusters, geometric earthworks, exotic artifacts and raw materials, and subsistence based on hunting, fishing, plant collection, and squash, maize, amaranth, and goosefoot cultivation. Grave offerings

are more elaborate than in the Adena Phase, and include mica and tortoise shell objects, grizzly bear canines, effigy pipes, woven plant fiber fabrics, and human clay figurines (Fiedel 1987).

The Late Woodland period (AD 600-1600) shows continuation of Hopewellian Phase subsistence strategies, but not of the elaborate mortuary practices. Large nucleated village sites develop as maize agriculture becomes more important, and hunting less important. Archaeological evidence of the Late Woodland period is most frequently found on major floodplains with fertile, well drained soils. The Intrusive Mound people, who inhabited Ohio during the Late Woodland period, were so named by Squire and Davis in the 1840s when they discovered intrusive burials in Adena and Hopewell mounds. Grave offerings with these intrusive burials include large triangular chert blades, and scrapers of chert, deer bone, and shell. Bone and antler barbed harpoons were used for fishing. A cutting tool made of a beaver incisor mounted in an antler handle is characteristic of the Intrusive Mound people. Platform pipes similar to those used by the Hopewell have been found associated with the Intrusive Mound people, suggesting that the two groups could be related (Potter 1968:55-56).

Also occupying central and southern Ohio during the Late Woodland period were the people of the Cole Complex, so named after the Walter S. Cole Site in Delaware County, excavated in 1948 (Potter 1968:56-57). Archaeological evidence suggests that Cole Complex people hunted, collected wild plants, and cultivated some plants. Projectile points associated with this complex vary in size and thickness, but tend to be side notched. Large chipped triangular chert knives and chipped slate disks for skinning are characteristic to the Cole Complex (Potter 1968:57). Cole Complex sites include semi-permanent villages and temporary camp sites. Pottery from this complex is generally large, coiled, cord-marked, and grit-tempered, and is similar to Peters Cordmarked (Potter 1968:59; Prufer 1975:13). It is unclear whether Cole Complex people are related to the Hopewell, who preceded them, or to the Fort Ancient people, who followed them (Potter 1968:61-62). Fort Ancient people occupied southern Ohio, and Erie (Whittlesey) people occupied northern Ohio at the end of the Woodland period, both continuing typical Woodland lifeways (Potter 1968:63-72).

3.2 PROTO-HISTORIC PERIOD

At the end of the Woodland period, populations in Ohio began to decrease. While there is no conclusive evidence of the reason for this general population decline, the transmission of European diseases inland from the East Coast through trade goods and inter-group contact is a likely cause (Griffin 1978). French maps from 1681 show that Shawnee (believed derived from the Mississippian-influenced Fort Ancient people) villages north of the Ohio had been destroyed, and that residents had relocated to western Tennessee (Callender 1978; Hunter 1978). Early historic records of what Native American groups had legitimate claim to territories in Ohio during the early contact period are not conclusive (Wallace 1969).

3.3 HISTORIC PERIOD

From the 1730s to the 1750s, the Shawnee, Wyandot, and Delaware moved into Ohio. This region was beyond the strongest reach of the Iroquois and served as a refuge for tribes avoiding the Iroquois (Hurt 1996:9-10). At this time, the French and the British were vying for control of the Ohio area. The allegiance of the Native American tribes in the area was sought by both the French and the British, not only for the capital gains to be made in trade with the Indians, but also for the military support the Indians could provide. The British strategy for obtaining Indian support included generous trading practices. The French on the other hand, were viewed by the Indians as greedy in trade, but they were more willing to take up arms alongside the Indians, or even against them if they were displeased. The balance of power, and the allegiance of the Ohio tribes, swung back and forth between the British and French in the early history of Ohio (Hurt 1996).

In 1753, the French claimed all land north of the Ohio River, while the British claimed all land to the south of the Ohio River, leaving no land for Indian claims. The predicament of the Ohio tribes at this time was that the French were willing to have the Indians fight to protect French interests, as were the British, but neither side was willing to join the Indians in the fight for Indian land. Beginning in 1754, and throughout the French and Indian War, the Ohio tribes were allied with the French (Hurt 1996:40). Under the Treaty of 1763, also known as the Treaty of Paris, England was granted the area of Great Lakes from Pennsylvania to the Mississippi River, after Britain's victory over France and Spain formally ending the French and Indian War. Various eastern states, such as Virginia, Connecticut, and Pennsylvania, claimed all or part of Ohio. After the war, the British victors demanded the return of all prisoners, and viewed the Ohio tribes as their subjects. Indian tradition does not require the return of captives, who are often assimilated into the tribe to compensate for tribal members killed in conflict. The Pontiac Rebellion was born of the Ohio tribes' frustration over attempts to negotiate with the British (Hurt 1996:45).

In 1763, Neolin, a Delaware, began teaching that European ways and goods were sinful, and encouraging a return to traditional tribal ways of life (Hurt 1996:46). Pontiac, an Ottawa war chief, combined Neolin's message with military force directed at driving White settlers off of tribal land (Hurt 1996:47). When the Pontiac Rebellion drew to a close in 1766, there was some recognition of tribal land rights by the British, but the tribes were still viewed as British subjects, and very little had changed (Hurt 1996:54).

The Treaty of Fort Stanwix was negotiated by the British with the Iroquois in 1768 for all lands south and east of the Ohio River, ostensibly a permanent boundary between tribal and British lands. The Shawnee refused to acknowledge this treaty, claiming that the Iroquois had no right to negotiate regarding that area (Hurt 1996:56-57). By 1774, the Treaty of Fort Stanwix was violated by settlers moving into Virginia and Kentucky, with bloody results. Shawnee retaliated for the encroachment by murdering settlers along the Ohio River; settlers retaliated for those murders by murdering Shawnee (Hurt 1996:57). The Shawnee were not offered support by the Iroquois, or by neighboring tribes. The

Shawnee finally had to accept the Treaty of Fort Stanwix and stop hunting south of the Ohio River, the first cession of land by an Ohio tribe (Hurt 1996:58).

During the Revolutionary War, the Ohio tribes joined the British to maintain trade relations and to be on the winning side. Since the British had defeated the French, the Indians believed they would also defeat the Americans. The Americans, meanwhile, courted peace with the Indians, who did not trust them (Hurt 1996:76). After the Treaty of Paris of 1783, the land north of the Ohio River was a bone of contention between the Americans and the Ohio tribes (Hurt 1996). In 1785, the Treaty at the Mouth of the Great Miami, between the Shawnee and the United States, gave the United States control of the land north of Ohio River. The Ohio land claims of the eastern states were settled by the Ordinance of 1787, creating the Northwest Territory. Connecticut retained a strip of land 120 miles long from Pennsylvania to Sandusky along Lake Erie, called the Western Reserve. In 1796, the State of Connecticut sold the Western Reserve to the Connecticut Land Company, and settlers began coming to the Western Reserve in great numbers in the following decades (WPA 1940).

After "Mad Anthony" Wayne negotiated the Treaty of Greenville in 1795, American and Indian relations changed:

> After Wayne's victory, the Indian policy of the United States changed as Thomas Jefferson had wished from "war to bribery." Thereafter, the government assumed that whenever it wanted more land, the Indian nations would sell it on demand, a perverse form of preemption by whites on Indian lands (Hurt 1996:142).

While the Indians saw this as a permanent boundary, the United States viewed it as temporary (Hurt 1996:142).

From that point on, the little territory left to the Ohio tribes was reduced incrementally. After the constitution of the state of Ohio was approved by the United States Congress on February 19, 1803, white settlement of the state proceeded quickly (Hurt 1996:282). After The War of 1812, the economy boomed and the rate of settlement by whites increased rapidly. In 1815, residents of European descent owned 75% of the land in the state, the Western Reserve also held land (Hurt 1996:344).

The Treaty of Fort Meigs, in 1817, relegated the Wyandots to a reservation in northwestern Ohio (Hurt 1996:1), as were the Delaware in the same year (Hurt 1996:212). In 1832, and again in 1836, this area was reduced in size. The Seneca and the Shawnee were removed from Ohio by 1840, as were the Wyandot in 1843. At that time, only about 700 Wyandot remained in the state, to be relocated in Kansas (Hurt 1996:1-2).

3.3.1 Lorain County

The lands in Ohio currently known as Lorain County were purchased by the Connecticut Land Company in 1795 for about 42 cents per acre. In the first years of the nineteenth century, some of the first European settlers began to arrive from Connecticut and other eastern states. Some traveled overland on muddy roads, and the rest by boat. The first family to settle the county was the Beebes, who came in 1807 as the advance agents of Nathan Perry, Jr., son of Nathan Perry of Cleveland. Shortly after their arrival, Perry built a house a short distance east of Black River, in which he opened a store and began trading with the Native Americans. In April of 1811, William Martin came from Pennsylvania with his family. They were followed in that same year by the Gillmore family from Massachusetts (Nichols 1924).

In 1822, having enough residents, Lorain County, named for the province of Lorraine in France, was formed out of parts of Cuyahoga, Medina, and Huron counties. Up to 1830, little or no settlement was made in the county away from Lake Erie. In 1833, a number of Germans immigrants arrived. Among the family names were: Feber, Baumhart, Friend, Bark, Haulkauer, Hageman, Hahn, Vetter, Harwick and others. Heman Ely first came to the area in the early 1800s. He donated land and money for the construction of the courthouse in Elyria, swaying the legislator's decisions to locate the county seat there (Nichols 1924).

By the mid-nineteenth century, industries such as shipbuilding, steelmaking, and fishing brought people, money and railroads to the area. In 1832, Presbyterian minister John L. Shipherd began planning to establish an institution of higher education in Oberlin, Ohio. The school opened in December 1833 and became known as Oberlin College. It was the first institution of higher education in the United States to admit women and African Americans into the same classes as white men (Ohio Historical Society 2005).

During the twentieth century, Lorain County's population has continued to grow. One of the reasons for this growth was the township's proximity to Cleveland, Ohio, in neighboring Cuyahoga County. Many Cleveland residents moved to the area hoping to escape the high housing costs and congestion of the city. However, many of Carlisle Township's residents commute to Cleveland to work. Between 1990 and 2000, Lorain County's population increased by five percent to a total of 284,664 residents in 2000. Lorain County has remained largely rural, with only seven percent of the county deemed to be urban. Despite the area's rural character, most residents earn their livings by working in manufacturing, sales, or service positions. Lorain's harbor has remained an important source of industry, sending products across the Great Lakes and around the world. For a brief period, during the late nineteenth and early twentieth centuries, steel was a major industry in Lorain County. By the mid-twentieth century, those operations had disappeared from the county (Ohio Historical Society 2005).

4.0 METHODS

4.1 OBJECTIVES

The primary objectives of the investigation were to determine whether the area to be affected by the proposed Project contains any archaeological resources and if those resources are potentially eligible for listing in the NRHP. All work was conducted in accordance with the OHPO *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011) and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (National Park Service [NPS] 1983).

4.2 AREA OF POTENTIAL EFFECT (APE)

The APE, for the purposes of this investigation, included all areas of proposed construction activities or other potential ground disturbing activities. However, the "Project Area" encompassed the APE and an area extending beyond the APE. This additional area on either side of the anticipated right-of-way was included in the Project Area to allow for flexibility in the event of minor route or workspace adjustments. The Project Area consisted of a 500.63-acre (202.60-hectare) area, which included a 200-ft corridor centered on the centerline of the Proposed Route, as well as anticipated TWAs outside the 200-ft corridor.

4.3 ARCHAEOLOGICAL SURVEY AREA

The majority of the Project Area (nearly 60 percent) will be located in or along previously disturbed rights-of-way or along existing developed areas. The portion of the Project Area north of Interstate 80 is more developed and hence subject to greater prior disturbance than the portion of the Project Area south of the interstate. South of Interstate 80, the Project Area mostly diverges from existing ROWs into undeveloped areas in an effort to minimize the potential for impact to wetlands, namely forested wetlands. Based on both a desktop and field delineation of wetlands, nearly 30 percent of the Project Area will cross wetlands. Areas considered to have a high potential to contain significant, intact archaeological resources include those in upland (non-wetland) areas near water sources that have not been previously disturbed by the installation and operation of existing utilities or other infrastructure, or by any other form of land development.

Because the majority of the Project Area is located in or along areas that have been previously disturbed and given the prevalence of wetlands, only a portion of the Project Area falls within areas that were assumed to have a high potential to encounter significant, intact archaeological resources. As a result, a Phase I archaeological survey was only conducted within the portions of the Project Area that occur within these assumed high potential areas (the "Survey Area") (see Appendix A: Survey Results Maps). The Survey Area consisted of 202.59 acres (81.99 hectares). Fieldwork was conducted from May 15 to May 29, 2014. Andrew Bielakowski and Mark Doperalski served as Principal Investigators.

4.4 ARCHAEOLOGICAL BACKGROUND RESEARCH

On February 26, 2014, staff from ERM conducted background research online using the Ohio Historic Preservation Office's ("OHPO") *Online Mapping System* for information regarding previously identified archaeological sites within one mile (1.6 km) of the proposed centerline, as well as archaeological surveys previously conducted within the Project Area. In addition, USGS topographic quadrangles, historical plat maps, aerial photographs, soils data were consulted and reviewed in order to assess the portions of the Project Area that may possess a higher potential for containing previously unidentified archaeological sites.

4.5 ARCHAEOLOGICAL SURVEY METHODS

The Phase I archaeological survey work for the Project was conducted during May of 2014. Andrew Bielakowski, M.A., RPA and Mark Doperalski, M.A., RPA served as Principal Investigators, and Mark Doperalski, M.A., RPA conducted the fieldwork with Kyle Spurgeon, M.A., Ryan Lisson, B.S., Aaron Gordon, B.S., and Frank Koep, B.A. (see Appendix D for a list of Project personnel).

The following survey methodology was implemented to identify archaeological resources within the Survey Area as defined above. All work was conducted in accordance with the OHPO *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011).

4.5.1 Pedestrian Survey

Systematic pedestrian surface reconnaissance was carried out across the entire Survey Area as defined above. Pedestrian reconnaissance was employed to ascertain whether above ground features, such as earthworks, stone features, or abandoned structural foundations, were present within the Survey Area. Pedestrian survey was also employed to identify artifacts in all areas where 50 percent or more of the ground surface was visible. Pedestrian reconnaissance was conducted at 10-meters (m) (33-ft) intervals and was reduced to 1- to 5-m (3- to 16-ft) intervals at locations where artifacts were identified or within the boundaries of previously recorded archaeological sites.

4.5.2 Shovel Testing

At least one shovel test was excavated in each area exhibiting greater than 50 percent surface visibility where artifacts were identified on the surface. Shovel tests were excavated at 15-m (49-ft) intervals in areas exhibiting less than 50 percent ground surface visibility that were not inundated or exhibiting excessive slope. With regard to areas exhibiting less than 50 percent surface visibility, once artifacts were recovered spacing of shovel tests was reduced to 5-m (16-ft) intervals and continued until two sequential negative shovel tests were excavated in all four cardinal directions. Shovel tests were square excavations, measuring approximately 50 by 50 centimeters (cm). All excavated soil matrices were passed through ¼-inch hardware mesh to ensure the consistent

recovery of artifacts. Tests were excavated in 10 cm arbitrary levels within soil layers to a minimum of 10 cm into the subsoil.

4.5.3 Site Delineation

When archaeological sites were identified during the pedestrian surface reconnaissance survey, an intensive surface examination of the site area was conducted to determine the boundary of the site area as well as record artifact concentrations and feature locations. Shovel tests were used to establish the soil stratigraphy at the site, determine the vertical limits of the site, and assess if subsurface deposits were likely to exist below the plow zone or initial soil horizon.

When archaeological sites were identified during subsurface survey (i.e., shovel testing) within areas exhibiting less than 50 percent ground surface visibility, additional shovel tests were placed 5 m (16 ft) from the original find spot in all four cardinal directions. Subsequent shovel tests were placed 5 m (16 ft) apart in the cardinal directions from all positive shovel tests until two negative shovel tests occurred in each direction; however, testing was confined to within the Survey Area.

4.5.4 Field Documentation

The Survey Area was navigated using a Trimble GeoExplorer XH sub-meter global positioning system ("GPS") unit. All significant archaeological finds and site boundaries were documented using GPS. Survey data was recorded through standardized forms and the field director's daily log. Recorded information included: shovel test locations and methods of testing; the numbers, types, and locations of recovered archaeological materials; the depth of shovel tests and the thickness of excavated soil layers; soil textures and inclusions (both natural and archaeological); and soil color according to Munsell® color charts.

4.6 LABORATORY METHODS

For the purposes of cataloging and analysis, each provenience from which artifacts were collected was assigned a unique bag number in the field, beginning with bag number "1" at each site. Upon completion of the fieldwork, all artifacts collected during the archaeological investigation were returned to the ERM archaeological laboratory for cleaning, processing, and cataloging. All artifacts identified on public lands will be curated in accordance the OHPO *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011). ERM is currently in the process of setting up a curation agreement with the Ohio Historical Society. In the case of artifacts identified on private lands, a letter will be sent to the appropriate landowner asking if the landowner is willing to donate their artifacts to an OHPO-approved curation facility. If the landowner is unwilling to donate their artifacts to a curation facility, the artifacts will be photographed and fully documented prior to the artifacts being returned to the landowner.

4.7 EVALUATION

Upon completion of the fieldwork and laboratory analyses, the eligibility of the identified sites for listing on the NRHP was assessed based on the site's significance and integrity. The NRHP criteria, summarized below, were used to help assess the significance of the site. While all four criteria are considered, prehistoric archaeological sites are typically eligible for listing on the NRHP under Criterion A or D.

- Criterion A – association with the events that have made a significant contribution to the broad patterns of our history;
- Criterion B – association with the lives of persons significant in our past;
- Criterion C – embodiment of the distinctive characteristics of a type, period, or method of construction; representation of the work of a master; possession of high artistic values; or representation of a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D – potential to yield information important to prehistory or history (NPS 1983).

5.0 LITERATURE REVIEW

5.1 PREVIOUS ARCHAEOLOGICAL SURVEYS

The literature search indicated that four previous archaeological surveys have been conducted within the Project Area. These previous surveys are listed in Table 2 (see Figure 2 and Appendix A for previous survey locations).

TABLE 2. PREVIOUS ARCHAEOLOGICAL SURVEYS WITHIN THE PROJECT AREA

Year	Archive ID	Author	Company	Title
1981	11929	David Bush, et al.	Case Western Reserve University	*The Archaeological Resources of the Ohio Turnpike – Phase II Investigations at Existing and Proposed Interchanges*
1989	12895	Rae Norris Sprague	Archaeological Services Consultants Group, Inc.	*Reconnaissance Survey for the Proposed AT&T Medina-Whitehouse Fiber Optic Cable through Medina, Lorain, Erie, Sandusky, Ottawa, Wood and Lucas County, Ohio*
1990	14067	David Bush, et al.	David R. Bush, Inc.	*A Phase I and II Archaeological Investigation of the Proposed LOR-301/611-25.00/8.60 Project in Avon and Sheffield Townships, Lorain County, Ohio*
1994	13648	Veronica Riegel	3D/Environmental	*Phase I and II Cultural Resources Report on Columbia Gas of Ohio Incorporated's Proposed 6.83 Mile Natural Gas Pipeline in Lorain County, Ohio*

In 1981, Case Western Reserve University conducted Phase II archaeological investigations for the Ohio Department of Transportation's existing and proposed interchanges of the Ohio Turnpike in Lorain County, Ohio. The project consisted of a literature search of previous cultural resources surveys and archaeological sites and Phase II archaeological survey within a proposed project area consisting of 33.7 acres, which is crossed by approximately 1,720 feet of the currently proposed Project. The survey report was not available to ERM for review; however, based on a review of the OHPO *Online Mapping System*, no archaeological sites were identified within the current proposed Project Area (Bush, et al. 1981).

In 1988 and 1989, Archaeological Services Consultants Group, Inc. conducted an archaeological reconnaissance survey for the proposed AT&T Medina-Whitehouse fiber optics cable alignment in various Ohio counties. In total, the project consisted of approximately 114 miles within a 100-foot survey corridor (approximately 113 acres), which is crossed by approximately 100 feet of the currently proposed Project. The

project consisted of a literature search of previous cultural resources surveys and archaeological sites and an archaeological reconnaissance survey within areas of higher archaeological and historical sensitivity within the APE. Although this archaeological reconnaissance survey identified a total of 51 prehistoric and historic sites within the various Ohio counties, no archaeological sites were identified within the current Project Area (Sprague 1989).

In 1989, David R. Bush, Inc. conducted a Phase I and II cultural resources investigation for the Ohio Department of Transportation's proposed LOR-301/611-25.00/8.60 project located in Avon and Sheffield Townships, Lorain County, Ohio. The APE consisted of a 150-foot area on either side of portions of Routes 611 and 301 (approximately 166 acres), which is crossed by approximately 450 feet of the currently proposed Project. The project consisted of a literature search of previous cultural resources surveys and properties and Phase I and II cultural resources survey. Although this cultural resources investigation identified a total of 31 cultural resource properties within the APE, no cultural resources were identified within the current Project Area (Bush et al. 1990).

In 1994, 3D/Environmental conducted a Phase I and II cultural resources investigation for Columbia Gas of Ohio, Inc.'s 6.83 mile natural gas pipeline in Lorain County, Ohio. The APE consisted of a 50-foot ROW along the majority of the 6.83 miles, although the APE was expanded to 70 feet along minor waterbodies and 100 feet at French Creek (approximately 67 acres total). The currently proposed Project parallels and crosses the previously proposed APE for approximately 6.4 miles. The project consisted of a literature search of previous cultural resources surveys and properties and Phase I and II cultural resources survey. No archaeological sites were identified within the current Project Area (Riegel 1994).

In addition to the above documented surveys, there are other previously existing utility and infrastructure projects (i.e., roads, railroads, transmission lines, and sewer lines) that are within the current Project Area. One of these is the Lorain County Rural Wastewater District, Phase 1 Wastewater Collection and Treatment Improvements Project (Ohio RCAP 2006). The project consists of a gravity sanitary sewer collection system and involves the installation of approximately 100,000 linear feet of 8-21 inch gravity sanitary sewer lines, 123,000 linear feet of 8-16 inch force main, and 16 pump stations and appurtenances. The Project Area parallels this sanitary sewer line for approximately 0.5 miles north of Interstate 90 and an additional 5 miles from French Creek Road (just south of Interstate 90) to Interstate 80. ERM has reviewed the environmental report submitted to the Ohio *Rural Community Assistance Program and associated consultation letters with the OHPO for this project* (Ohio RCAP 2006). No cultural resources surveys were completed for this project because OHPO had determined that much of the area

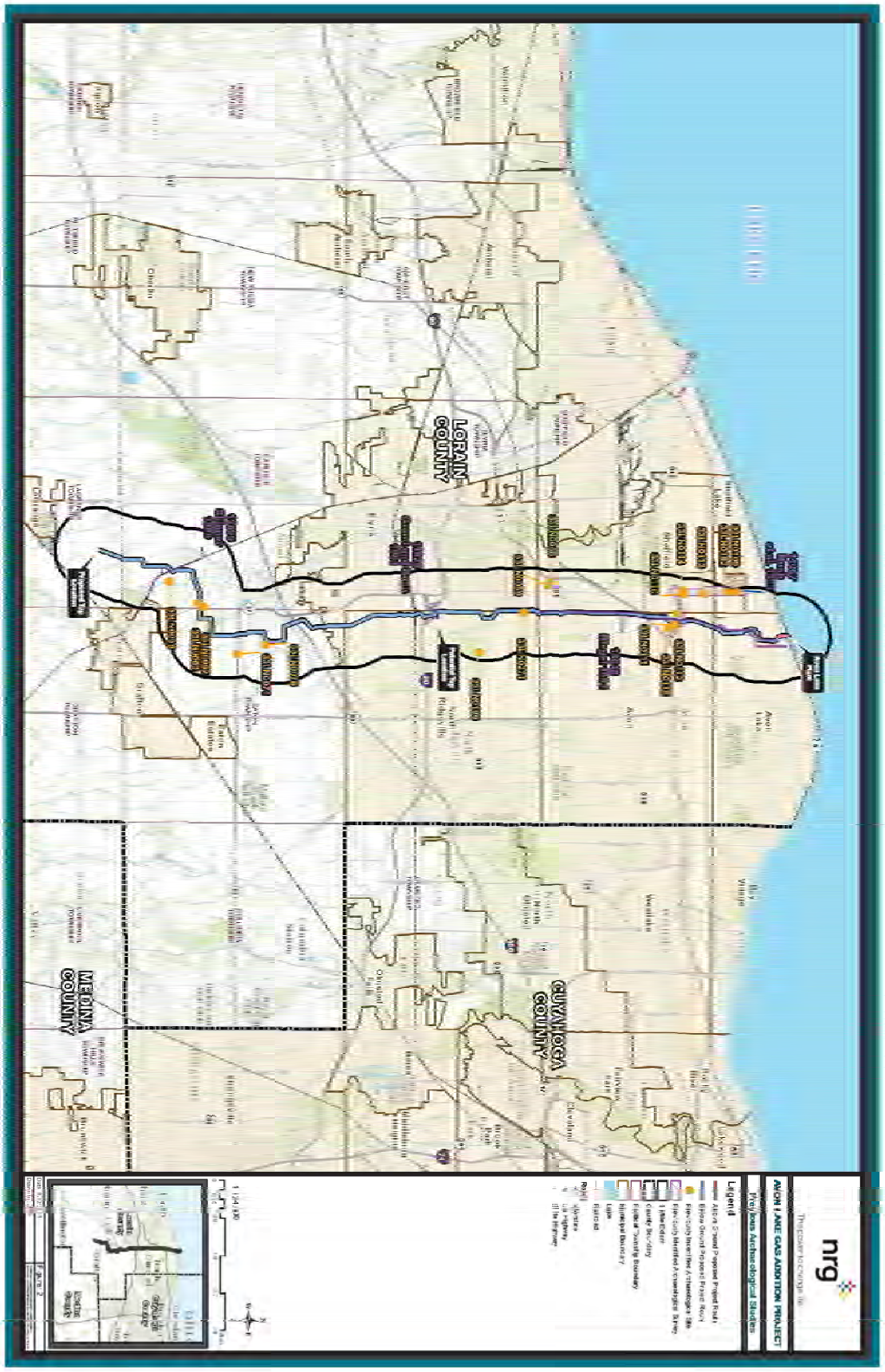


FIGURE 2. PREVIOUS ARCHAEOLOGICAL STUDIES AND SITE LOCATIONS

along the intended route appeared to be previously disturbed given the presence of an existing electric transmission line and previously surveyed gas line.

5.2 PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

One archaeological site has been recorded within the Project Area (see Figure 2; Table 3; and Appendix A for previous site locations).

Site 33LN0076 was reported by an artifact collector (William Sabol) to archaeologists conducting a survey for the proposed Route 20 by-pass in 1977. The site was recorded as an artifact scatter associated with the Archaic and Woodland periods based on information provided by the artifact collector. It appears that the artifact collection was not actually inspected by the archaeologists who recorded the site, nor had it been evaluated for inclusion in the NRHP (Ohio Archaeological Site Recording Form 33LN0076; accessible on the OHPO *Online Mapping System*). ERM revisited the site as part of the current investigation and the results are discussed below in Section 6.

TABLE 3. PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL SITES WITHIN THE PROJECT AREA

Site No.	Site Name	Period	Type	NRHP Status
33LN0076	Brush School Site	Prehistoric	Artifact Scatter	Not Evaluated

An additional 16 archaeological sites have been recorded beyond the Project Area but within one mile (1.6 km) of the Project centerline (see Figure 2; Table 4; and Appendix A for previous site locations).

TABLE 4. PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL SITES WITHIN ONE-MILE OF THE PROJECT CENTERLINE

Site No.	Site Name	Period	Type	NRHP Status
33LN0038	Van Ambaurgh Site	Prehistoric	Artifact Scatter	Not Evaluated
33LN0058	Garnall Site #1	Prehistoric	Artifact Scatter	Not Evaluated
33LN0059	Garnall Site #2	Prehistoric	Artifact Scatter	Not Evaluated
33LN0062	Dimaline Site #1	Prehistoric	Artifact Scatter	Not Evaluated
33LN0063	Dimaline Site #2	Prehistoric	Artifact Scatter	Not Evaluated
33LN0071	Sabol Site	Prehistoric	Artifact Scatter	Not Evaluated
33LN0109	Abbe Road Site	Prehistoric	Lithic Scatter	Not Evaluated
33LN0110	Blaha Site	Prehistoric	Lithic Scatter	Not Evaluated
33LN0111	Conrad Site	Prehistoric	Artifact Scatter	Not Evaluated
33LN0112	Burkart Site	Prehistoric	Isolated Find	Not Evaluated
33LN0113	Rieth	Historic	Foundation and Features	Not Evaluated
33LN0114	-------	Historic	Foundations	Not Evaluated
33LN0115	-------	Historic	Foundation, Features, and Architectural Artifacts	Not Evaluated
33LN0182	Thomas Farmstead	Historic	Historic Structure and Artifacts	Not Evaluated
33LN0186	-------	Prehistoric	Isolated Find	Not Evaluated
33LN0271	Balog Site	Prehistoric	Artifact Scatter	Not Evaluated

6.0 ARCHAEOLOGICAL SURVEY RESULTS

6.1 SURVEY RESULTS

During the Phase I archaeological survey for the Project, ERM identified five newly recorded archaeological sites within the Survey Area (Figure 3; Table 5; Appendix A). All five sites (33LN0278, 33LN0279, 33LN0280, 33LN0281, and 33LN0282) are recommended not eligible for listing in the NRHP based on the results of the current investigation. These five sites consist of two lithic isolated finds (33LN0278 and 33LN0282), two sparse lithic scatters (33LN0280 and 33LN0281), and one historic-period site (33LN0279) consisting of a well feature and several drainage ditches. These five newly recorded archaeological sites are described in detail below and summary information for each is presented in Table 5. Four of the five sites are either isolated or their integrity has been disturbed such that there is no potential for these sites to provide additional information important to history. The remaining site does not appear to be associated with an event of local or national importance and does not exhibit architecturally remarkable structures demonstrating the work of a master. For these reasons, ERM does not recommend any further archaeological investigation for these areas.

Two additional find spots, AV88.1-1 and AV199-1, were identified during the archaeological survey. Site AV88.1-1 is a modern-period dump deposit consisting of discarded wood comprised of railroad ties, pallets, and logs at the edge of a clearing. Site AV199-1 is a modern-period dump deposit consisting of large cut slabs of roadway stacked within a wooded area at the edge of a clearing. On average the large rectangular slabs measure 3.5 meters long by 2.0 meters wide by 0.25 meters thick and consist of rebar reinforced concrete overlain with an asphalt surface. The locations of these find spots were noted for due diligence and are depicted on Maps 7 and 17 of Appendix A; however, they were not recorded as official archaeological sites due to the apparent recent nature of the deposits. No further work is recommended prior to construction.

ERM also revisited the single archaeological site (33LN0076) previously identified within the Project Area (Figure 3; Table 5; Appendix A). Site 33LN0076 was reported by an artifact collector (William Sabol) to archaeologists conducting a survey for the proposed Route 20 by-pass in 1977. The site was recorded as an artifact scatter associated with the Archaic and Woodland periods based on information provided by the artifact collector. It appears that the artifact collection was not actually inspected by the archaeologists who recorded the site. Prior to the current investigation, the site area had not been previously investigated by an archaeologist nor had it been evaluated for inclusion in the NRHP (Ohio Archaeological Site Recording Form 33LN0076; accessible on the OHPO *Online Mapping System*). The current Phase I archaeological investigation identified only two lithic artifacts within the portion of 33LN0076 intersected by the Project Area. Based on the results of the current investigation the portion of 33LN0076 intersected by the Project Area is recommended not eligible for listing in the NRHP.

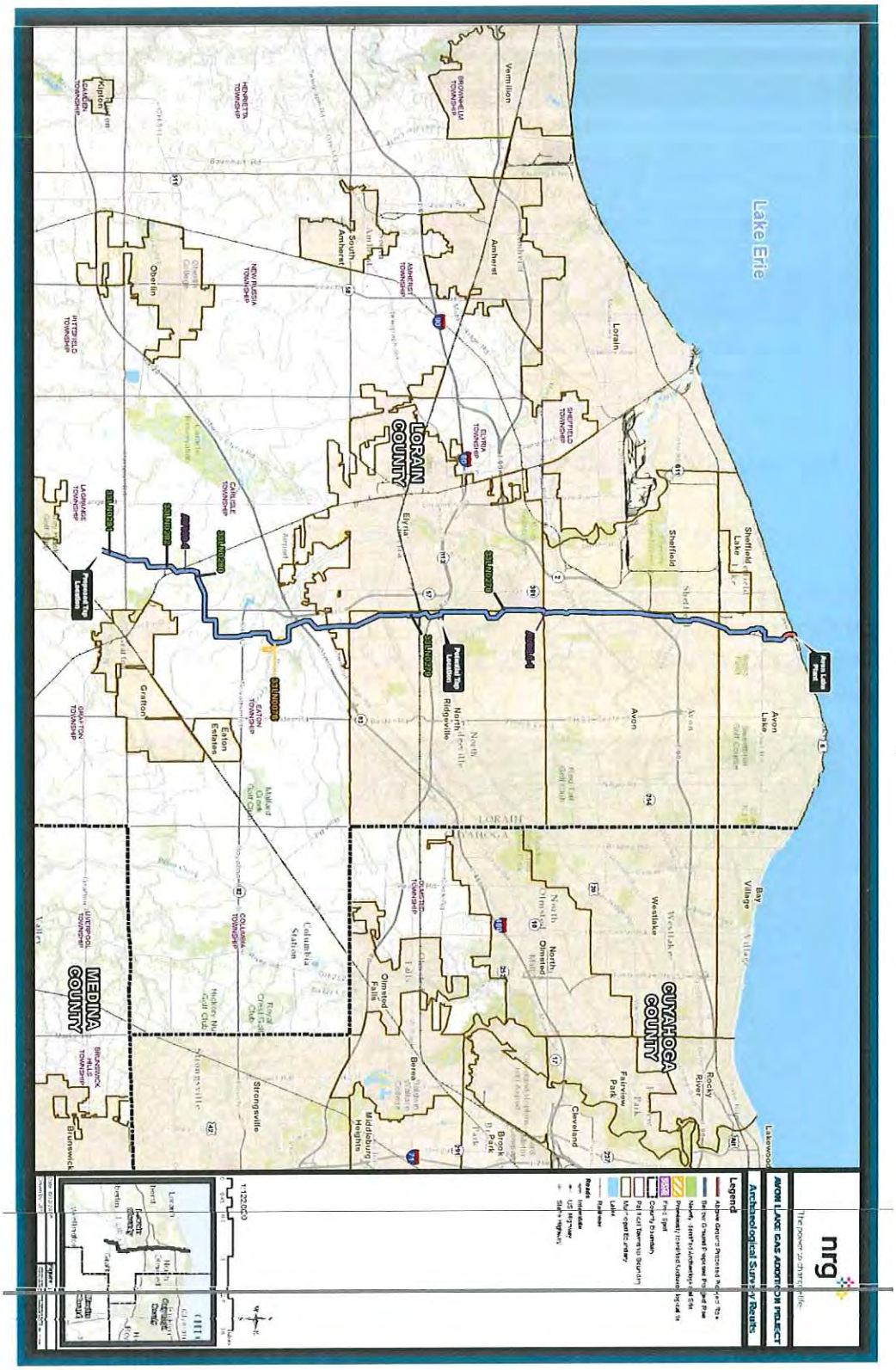


FIGURE 3. PHASE I ARCHAEOLOGICAL SURVEY RESULTS

TABLE 5. ARCHAEOLOGICAL SITES IDENTIFIED WITHIN THE PROJECT AREA

Site No.	Parcel	Township/Municipality	Description	Recommendation
New Archaeological Sites Recommended Not Eligible				
33LN0278	96	Elyria City	Lithic Isolate	Not Eligible
33LN0279	125	North Ridgeville City	Historic-Period Features	Not Eligible
33LN0280	197	Carlisle Township	Lithic Scatter	Not Eligible
33LN0281	208	Carlisle Township	Isolated Scatter	Not Eligible
33LN0282	216.2	LaGrange Township	Isolated Lithic	Not Eligible
Previously Identified Archaeological Sites – Portion within Project Area Recommended Not Eligible				
33LN0076	167 & 168	Eaton Township	Lithic Scatter	Not Eligible (Portion within Project Area)

6.1.1 New Archaeological Sites Recommended as Not Eligible

6.1.1.1 Site 33LN0278

Site 33LN0278 consists of a single piece of shatter on an indeterminate chert material. The artifact was identified during subsurface testing on a slightly undulating elevated wooded terrace overlooking Ridgeway Ditch to the southwest (see Figures 3, 4, and 5; Appendix A: Map 8).



FIGURE 4. OVERVIEW OF SITE 33LN0278; FACING SOUTH



FIGURE 5. SITE MAP: 33LN0278

At the time of survey, the area exhibited deciduous woodland vegetation providing little to no surface visibility. Pedestrian survey was conducted at 10-m intervals across this portion of the Survey Area; however, no artifacts or features were identified. Due to the poor surface visibility shovel testing was conducted at 15-m intervals. Nine shovel tests were placed at 15-m intervals within this portion of the Survey Area. One shovel test was found to contain archaeological resources. Shovel test 3 contained one piece of shatter of an indeterminate chert material at 0 to 10 cmbs. Additional shovel tests were excavated at 5-meter intervals in all four cardinal directions from the positive test until two consecutive negative tests were encountered in all directions. No additional archaeological resources were identified.

A total of 17 shovel tests were excavated within this portion of the Survey Area. Soils were moderately well developed revealing two layers, and were excavated to an average depth of 29 cmbs. The initial layer consisted of silt clay soil and ranged in color from very dark grayish brown (10YR3/2) to brown (10YR4/3). The initial layer extended to depths ranging from 6 to 30 cmbs overlying a second layer consisting of dark grayish brown (10YR4/2) to light brownish gray (10YR6/2) clay mottled by yellowish brown (10YR5/6) to brownish yellow (10YR6/6) clay oxidation channels.

A boundary was drawn around a 5-m buffer of the single positive shovel test (see Figure 5). The 0.02-acre area was designated Site 33LN0278.

Site Eligibility Status and Recommendations

Site 33LN0278 consists of an isolated lithic artifact. Intensive pedestrian surface reconnaissance as well as subsurface testing was conducted at the site; however, no additional archaeological resources were identified. The potential for this site to yield further information important in history has been exhausted. ERM recommends the site not eligible for listing in the NRHP as the site is unlikely to provide additional information important to history and therefore cannot satisfy NRHP Criterion D. No further archaeological investigation of Site 33LN0278 is recommended.

6.1.1.2 Site 33LN0279

Site 33LN0279 consists of a historic-period brick-lined well shaft capped with a 20 inch by 20 inch metal housing and an associated drainage ditch system. A large boulder, measuring approximately 1 m by 0.75 m, has been placed on top of the well, presumably to prevent accidental entry into the well shaft. A system of ditches, likely associated with the well shaft feature, was noted within the wooded lowland area surrounding the well shaft. The historic-period features were identified within a wooded area exhibiting saturated soils and providing little to no surface visibility (see Figures 3, 6, 7, and 8; Appendix A: Map 11).



FIGURE 6. HISTORIC-PERIOD WELL FEATURE IDENTIFIED AT SITE 33LN0279; FACING SOUTH



FIGURE 7. EXAMPLE OF DITCH SYSTEM FEATURES IDENTIFIED AT 33LN0279; FACING NORTHWEST



FIGURE 8. SITE MAP: 33LN0279

At the time of survey, the area exhibited deciduous woodland/wetland vegetation providing little to no surface visibility. The area exhibited very wet conditions and appears to be a wetland environment. Pedestrian survey was conducted at 10-m intervals across this portion of the Survey Area, which led to the discovery of a well shaft feature and an associated system of drainage ditches. The well shaft feature and the associated system of drainage ditches were mapped within the Survey Area, though the drainage system appears to extend to the east beyond the Survey Area. Due to the poor surface visibility four shovel tests set at 5-m intervals in all four cardinal directions from the well shaft feature were excavated. All four shovel tests were negative for archaeological material and all four exhibited soils indicative of a wetland environment.



FIGURE 9. EXAMPLE OF SOIL STRATIGRAPHY AT SITE 33LN0279; FACING SOUTH

The soils were moderately well developed revealing two layers, and were excavated to an average depth of 41 cmbs. The initial layer consisted of silt clay to clay soil and ranged in color from very dark grayish brown (10YR3/2) to dark gray (10YR4/1). The initial layer extended to depths ranging from 15 to 39 cmbs overlying a second layer consisting of gray (10YR6/1) to light brownish gray (10YR6/2) clay mottled by yellowish brown (10YR5/6) to brownish yellow (10YR6/6) clay oxidation channels.

A boundary was drawn around historic-period features identified at with the Survey Area (see Figure 8). The 2.12-acre area was designated Site 33LN0279.

The site area is located along the western edge of what was historically known as Ridgeville Township. Plat maps from 1874 and 1896 were examined (see Figures 10 and 11). The plat map from 1874 did not provide great detail with regard to landownership or structure placement other than the presence of the Lake Shore and Michigan Southern Railroad (LS&MS Railroad) to the north of the site area (D.J. Lake & Company 1874). The 1896 plat map indicates that at that time the site area was owned by H. Chappel (American Atlas Company 1896). One structure is noted on the parcel owned by H. Chappel; however, it was located north of the LS&MS Railroad and well north of the 33LN0279 site area. No other historical maps or images of the area were available at the time of this investigation. Aerial photographs from 1994, 2000, 2006, 2010, and 2012 were examined to assess how the site area may have changed over time. No structures were apparent in any of the photographs. The photographs also demonstrate that the area has remained largely unchanged since at least 1994. Today, the Invacare Corporation owns the parcel of land housing the site.

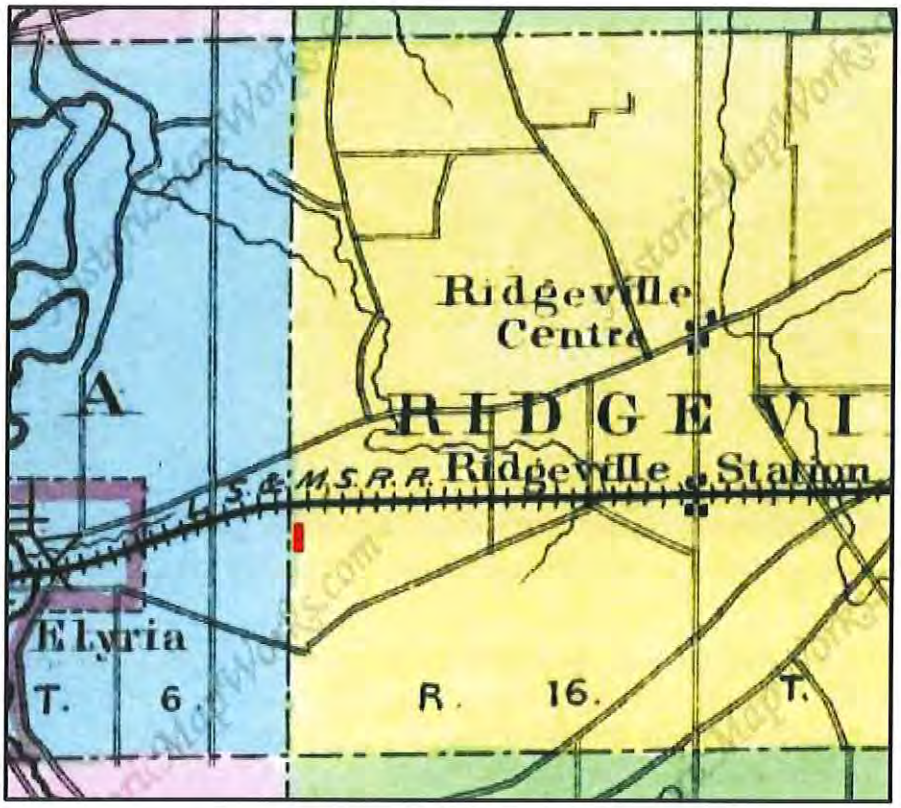


FIGURE 10. 1874 PLAT MAP WITH SITE 33LN0279 OVERLAY

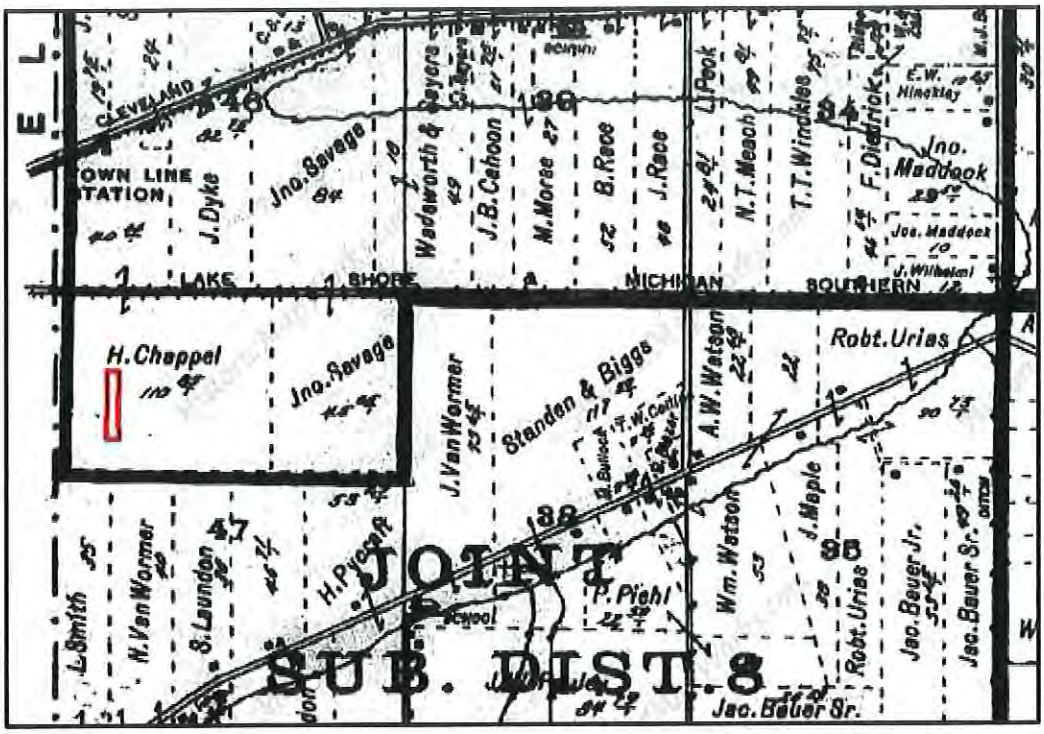


FIGURE 11. 1896 PLAT MAP WITH SITE 33LN0279 OVERLAY

Site Eligibility Status and Recommendations

Site 33LN0279 consists of a historic-period brick-lined well shaft capped with a 20 inch by 20 inch metal housing and an associated drainage ditch system. H. Chappel, owner of the parcel of land in 1896, does not appear to have been a person of local, state, or national importance. It is unclear who owned the property between H. Chappel's ownership and the period in which the Invacare Corporation took over ownership; however, it is unlikely the site is eligible for listing in the NRHP under Criterion B. The site does not appear to be associated with an event of local or national importance and does not exhibit architecturally remarkable structures demonstrating the work of a master. For those reasons the site is recommended not eligible for listing in the NRHP under Criteria A and C. The structures have been razed and the site is actively tilled for agricultural purposes. It is unlikely that the well shaft feature and associated drainage ditch system could provide important information regarding the European settlement and industrial development of Lorain County not already gleaned from better preserved sites. As a result, Site 33LN0279 is recommended not eligible for listing in the NRHP under Criterion D. No further archaeological investigation of the portion of Site 33LN0279 residing within the Project Area is recommended.

6.1.1.3 Site 33LN0280

Site 33LN0280 consists of a sparse lithic scatter identified during subsurface testing on a relatively flat elevated terrace overlooking the East Branch Black River to the east (see Figures 3, 12, and 13; Appendix A: Map 17).



FIGURE 12. SITE MAP: 33LN0280



FIGURE 13. OVERVIEW OF SITE 33LN0278; FACING SOUTH

At the time of survey, the area exhibited soy detritus from the previous season and very heavy weed growth, which limited the surface visibility to less than five percent. Pedestrian survey was conducted at 10-m intervals across this portion of the Survey Area; however, no artifacts or features were identified. Due to the poor surface visibility shovel testing was conducted at 15-m intervals. Twelve shovel tests were placed at 15-m intervals within this portion of the Survey Area. One shovel test was found to contain archaeological resources. Shovel test 3 contained one complete overshot flake of a material comparable to Onondaga chert at 20 to 30 cmbs. Additional shovel tests were excavated at 5-meter intervals in all four cardinal directions from the positive test until two consecutive negative tests were encountered in all directions to delineate the site boundary. During the site delineation process, four more positive shovel tests were excavated before two consecutive negative shovel tests at 5-m intervals were encountered in all four cardinal directions from all positive tests. Shovel test 14 contained one complete flake of Flint Ridge chert at 0 to 10 cmbs. Shovel test 15 contained one complete bifacial preform crafted of a material comparable to Onondaga chert at 20 to 30 cmbs (see Figure 14). Shovel test 25 contained one piece of shatter of an indeterminate chert material at 0 to 10 cmbs and shovel test 29 contained one proximal flake of an indeterminate chert material at 0 to 10 cmbs. No additional archaeological materials were identified at Site 33LN0280 beyond the five lithic artifacts discussed above.



FIGURE 14. BIFACIAL PREFORM IDENTIFIED AT SITE 33LN0280

A total of 32 shovel tests were excavated within this portion of the Survey Area. Soils were moderately well developed revealing two layers, and were excavated to an average depth of 27 cmbs. The initial layer (Ap horizon) consisted of silt loam soil and ranged in color from dark brown (10YR3/3) to dark grayish brown (10YR4/2). The initial layer extended to depths ranging from 19 to 40 cmbs overlying a second layer consisting of brown (10YR4/3) to dark yellowish brown (10YR4/6) sandy silt to sandy clay.



FIGURE 15. EXAMPLE OF SOIL STRATIGRAPHY AT SITE 33LN0280; FACING NORTH

A boundary was drawn around a 5-m buffer of the positive shovel test units (see Figure 12). The 0.09-acre area was designated Site 33LN0280.

The Site 33LN0280 assemblage consists of one bifacial preform and a complete overshot flake of a material comparable to Onondaga chert, one complete flake of Flint Ridge chert, and one piece of shatter and one proximal flake of an indeterminate chert material (Table 6). The entire artifact assemblage is comprised of chipped stone artifacts (n=5). The assemblage contains one chipped stone tool (n=1), but is dominated by debris from lithic reduction (n=4). The majority of the flakes and shatter lack cortex (n=3 of 4).

The raw materials used for chipped stone tool production at 33LN0280 consist of two identifiable raw materials. Table 7 summarizes the lithic raw materials by count and mass and provides a percent representation by count and mass for each raw material type. The most common material type identified at 33LN0280 is material comparable to Onondaga chert (n=2), which accounts for over 40 percent of the chipped stone artifacts (by count; 80 percent by mass) identified at the site.

TABLE 6. ARTIFACT ASSEMBLAGE BY TYPE AND COUNT AT 33LN0280

Artifact Type and Morphology	Artifact Count
Debitage	**4**
Complete Flake	2
Proximal Flake	1
Shatter	1
Tool	**1**
Bifacial Preform	1
Grand Total	**5**

TABLE 7. LITHIC RAW MATERIAL REPRESENTATION BY COUNT AND MASS AT 33LN0280

Raw Material	Artifact Count	Percent Total Count	Artifact Mass (g)	Percent Total Mass
cf. Onondaga Chert	2	40.00%	27.3	80.06%
Flint Ridge Chert	1	20.00%	4.8	14.08%
Indeterminate Chert	2	40.00%	2	5.87%
Grand Total	**5**	**100.00%**	**34.1**	**100.00%**

The geological distribution of Onondaga chert is somewhat widespread. The Onondaga Formation runs across a large area from Detroit, Michigan to the north of Lake Erie and continues eastward to Albany, New York. Material from the Onondaga Formation, including Onondaga chert, was likely distributed within glacial till deposits across a large region to the south of its geological origin. Therefore, it is possible that Onondaga chert and material comparable to Onondaga chert may be available locally at or near the 33LN0280 site area within glacial deposits. The geological distribution of Flint Ridge chert is limited to the Vanport limestone located in southeastern Licking and western Muskingum counties in east-central Ohio (DeLong:1972).

Radiometric dates are not available for 33LN0280 and no diagnostic artifacts indicative of a specific time period within the overall prehistoric period were recovered. Based on the limited assemblage size, the site appears to represent a briefly utilized retooling area or hunting post. It is possible that the bifacial preform identified at the site was produced there given the complete overshot flake of the same material also identified at the site. The location of the site on well-drained, elevated terrace overlooking the East Branch Black River suggests that a good vantage point in close proximity to water resources could have been a factor in site location making it a relatively plentiful and opportune place with regard to the hunting of wild game. Food procurement and preparation are not represented at the site, although severe leaching may have destroyed organic remains including faunal material.

Site Eligibility Status and Recommendations

A sparse lithic subsurface scatter consisting of one bifacial preform, two complete flakes, one proximal flake, and one piece of shatter was identified at Site 33LN0280. Close interval pedestrian survey and intensive subsurface testing were employed within the site boundary; however, no other archaeological resources such as features, identifiable flora and fauna remains, or identifiable activity areas were discovered.

NRHP Criterion D requires that archaeological sites have the potential to answer important research questions. Unfortunately, the site exhibits disturbed stratigraphy due to agricultural activities and lacks features, diagnostic artifacts, flora and fauna remains, and identifiable activity areas; making it difficult to address any group-specific research questions, environmental use patterns, or identify whether the site represents a single pattern or multiple patterns of history. The potential for this site to yield further information important in history has been exhausted. ERM recommends that Site 33LN0280 be considered not eligible for listing in the NRHP. No further archaeological investigation of Site 33LN0280 is recommended.

6.1.1.4 Site 33LN0281

Site 33LN0281 is a sparse lithic surface scatter consisting of one biface fragment crafted of a material comparable to Coshocton or Onondaga chert as well as one piece of shatter and one complete flake of an indeterminate chert. The artifacts were identified on the ground surface within an actively cultivated agricultural field exhibiting relatively flat topography (see Figures 3, 16, 17, and 18; Appendix A: Map 18). At the time of survey, the site area exhibited remnant soybean detritus from the previous season, which allowed for 75 to 85 percent ground surface visibility. Pedestrian survey was conducted at 1-m intervals within a 30 m buffer of the find spot; however, no additional material was identified on the surface beyond the three lithic artifacts discussed above.



FIGURE 16. SITE MAP: 33LN0281



FIGURE 17. OVERVIEW OF SITE 33LN0281; FACING NORTH



FIGURE 18. BIFACIAL TOOL IDENTIFIED AT SITE 33LN0281

Due to excellent surface visibility, two shovel tests were excavated at the find spot to assess soil stratigraphy at the location and check for the presence of buried archaeological deposits. No additional archaeological resources were identified. Soils were moderately well developed revealing two layers, and were excavated to an average depth of 26 cmbs. The initial layer (Ap horizon) contained brown (10YR4/3) silt loam to silt clay soil. The Ap horizon extended to an average depth of 37 cmbs overlying a second layer of grayish brown (10YR5/2) clay mottled by yellowish brown (10YR5/6) clay oxidation channels.

A boundary was drawn around a 5-m buffer of the surface find locations (see Figure 16). The 0.16-acre area was designated Site 33LN0281.

Site Eligibility Status and Recommendations

Site 33LN0281 is a sparse surface scatter consisting of three lithic artifacts. Intensive pedestrian surface reconnaissance as well as subsurface testing was conducted at the site; however, no additional archaeological resources were identified. Additionally the mixing of sediments due to agricultural activities has disturbed the geological deposits. The potential for this site to yield further information important in history has been exhausted. ERM recommends the site not eligible for listing in the NRHP as the site is unlikely to provide additional information important to history and therefore cannot satisfy NRHP Criterion D. No further archaeological investigation of Site 33LN0281 is recommended.

6.1.1.5 Site 33LN0282

Site 33LN0282 consists of an isolated lithic artifact fashioned out of a material comparable to Coshocton or Onondaga chert. The artifact, a large modified complete flake, was identified on the ground surface within a relatively flat agricultural field located west of Dent Ditch (see Figures 3, 19, 20, and 21; Appendix A: Map 19). At the time of survey the site area exhibited remnant soybean detritus from the previous season as well as weed growth, which allowed for 55 to 65 percent ground surface visibility. Pedestrian survey was conducted at 1-m intervals within a 30 m buffer of the find spot; however, no additional material was identified on the surface.

Due to excellent surface visibility, a single shovel test was excavated at the find spot to assess soil stratigraphy at the location and check for the presence of buried archaeological deposits. No additional archaeological resources were identified. Soils were moderately well developed revealing two layers, and were excavated to a depth of 35 cmbs. The initial layer (Ap horizon) contained brown (10YR5/3) silt loam to silt clay soil. The Ap horizon extended to a depth of 25 cmbs overlying a second layer of grayish brown (10YR5/2) clay mottled by dark yellowish brown (10YR4/6) clay oxidation channels.

A boundary was drawn around a 5-m buffer of the surface find location (see Figure 19). The 0.02-acre area was designated Site 33LN0282.



FIGURE 19. SITE MAP: 33LN0282



FIGURE 20. OVERVIEW OF SITE 33LN0282; FACING NORTH



FIGURE 21. MODIFIED FLAKE IDENTIFIED AT SITE 33LN0282

Site Eligibility Status and Recommendations

Site 33LN0282 consists of an isolated lithic tool. The isolated find likely represents a single discard event. Intensive pedestrian surface reconnaissance as well as subsurface testing was conducted at the site; however, no additional archaeological resources were identified. Additionally the mixing of sediments due to agricultural activities has disturbed the geological deposits. The potential for this site to yield further information important in history has been exhausted. ERM recommends the site not eligible for listing in the NRHP as the site is unlikely to provide additional information important to history and therefore cannot satisfy NRHP Criterion D. No further archaeological investigation of Site 33LN0282 is recommended.

6.1.2 Previously Identified Archaeological Sites – Portion within Project Area Recommended as Not Eligible

6.1.2.1 Site 33LN0076

Site 33LN0076 was reported by an artifact collector (William Sabol) to archaeologists conducting a survey for the proposed Route 20 by-pass in 1977. The site was recorded as an artifact scatter associated with the Archaic and Woodland periods based on information provided by the artifact collector. It appears that the artifact collection was not actually inspected by the archaeologists who recorded the site. Prior to the current investigation, the site area had not been previously investigated by archaeologist nor had it been evaluated for inclusion in the NRHP (Ohio Archaeological Site Recording Form 33LN0076; accessible on the OHPO *Online Mapping System*).

The current Phase I archaeological investigation identified only two lithic artifacts within the portion of 33LN0076 intersected by the Project Area. The two artifacts, a piece of shatter of a material comparable to Onondaga chert and a complete flake of an indeterminate chalcedony material, were identified during subsurface testing within a relatively flat agricultural field located just west of Willow Creek (see Figures 3, 22, and 23; Appendix A: Map 14).

At the time of survey, the portion of 33LN0076 intersected by the Project Area fell within two separate agricultural fields. The majority of the intersected portion of the site fell within a relatively flat open field exhibiting tall grassland vegetation which allowed for little to no surface visibility. A very small portion of 33LN0076 intersected by the Project Area fell within an actively cultivated agricultural field exhibiting remnant soybean detritus from the previous season as well as weed growth, which allowed for 55 to 65 percent ground surface visibility.

Pedestrian survey was conducted at 5-m intervals across the entire portion of 33LN0076 intersected by the Project Area. No artifacts or features were identified. Due to the poor surface visibility within the agricultural field exhibiting tall grassland vegetation, the entire portion of 33LN0076 intersected by the Project Area and falling within the field exhibiting tall grassland vegetation was shovel tested at 15-m intervals.



FIGURE 22. SITE MAP: 33LN0076



FIGURE 23. OVERVIEW OF SITE 33LN0076 INTERSECTED BY PROJECT AREA; FACING SOUTH

Fifty shovel tests were placed at 15-m intervals within the portion of 33LN0076 intersected by the Project Area. Two shovel tests were found to contain archaeological resources. Shovel test 12 contained one complete flake of an indeterminate chalcedony material at 20 to 30 cmbs. Shovel test 14 contained one piece of shatter of a material comparable to Onondaga chert at 10 to 20 cmbs. Additional shovel tests were excavated at 5-meter intervals in all four cardinal directions from each positive test until two consecutive negative tests were encountered in all directions. No additional archaeological resources were identified.

A total of 66 shovel tests were excavated within the portion of 33LN0076 intersected by the Project Area. Soils were moderately well developed revealing two layers, and were excavated to an average depth of 39 cmbs. The initial layer (Ap horizon) consisted of silt and clay silt soil and ranged in color from dark grayish brown (10YR4/2) to brown (10YR5/3). The Ap horizon extended to depths ranging from 20 to 36 cmbs overlying a second layer consisting of dark gray (10YR4/1) to light brownish gray (10YR6/2) clay mottled by dark yellowish brown (10YR4/6) to yellowish brown (10YR5/8) clay oxidation channels.

The location and dimensions of the 38.29-acre site area previously reported as 33LN0076 were not altered or modified based on the current survey results.



FIGURE 24. EXAMPLE OF SOIL STRATIGRAPHY AT SITE 33LN0076; FACING WEST

Site Eligibility Status and Recommendations

Site 33LN0076 was previously reported as an artifact scatter consisting of archaeological resources reminiscent of the Archaic and Woodland periods. Intensive pedestrian surface reconnaissance and subsurface testing were conducted within the portion of the site intersected by the Project Area; however, only one piece of shatter and one complete flake were identified during the current investigation. The portion of 33LN0076 intersected by the Project Area likely represents a brief tool production or maintenance event during the prehistoric-period. The potential for the portion of the site intersected by the Project Area to yield further information important in history has been exhausted. ERM recommends the portion of 33LN0076 intersected by the Project Area not eligible for listing in the NRHP as this portion of the site is unlikely to provide additional information important to history and therefore cannot satisfy NRHP Criterion D. No further archaeological investigation is recommended for the portion of 33LN0076 intersected by the Project Area.

7.0 SUMMARY AND RECOMMENDATIONS

During the Phase I archaeological survey, ERM identified five newly recorded archaeological sites within the Project Area (Figure 3; Table 5; Appendix A). All five sites (33LN0278, 33LN0279, 33LN0280, 33LN0281, and 33LN0282) are recommended not eligible for listing in the NRHP. These five sites consist of two lithic isolated finds (33LN0278 and 33LN0282), two sparse lithic scatters (33LN0280 and 33LN0281), and one historic-period site (33LN0279) consisting of a well feature and several drainage ditches. These five newly recorded archaeological sites are described in detail above and summary information for each is presented in Table 5.

Two additional find spots, AV88.1-1 and AV199-1, were identified during the Phase I archaeological survey. Site AV88.1-1 is a modern-period dump deposit consisting of discarded wood comprised of railroad ties, pallets, and logs at the edge of a clearing. Site AV199-1 is a modern-period dump deposit consisting of large cut slabs of roadway stacked within a wooded area at the edge of a clearing. On average the large rectangular slabs measure 3.5 meters long by 2.0 meters wide by 0.25 meters thick and consist of rebar reinforced concrete overlain with an asphalt surface. The locations of these find spots were noted for due diligence and are depicted on Maps 4 and 6 of Appendix A; however, they were not recorded as official archaeological sites due to the apparent recent nature of the deposits. No further work is recommended prior to construction.

ERM also revisited the single archaeological site (33LN0076) previously identified within the Project Area (Figure 3; Table 5; Appendix A). Site 33LN0076 was reported by an artifact collector (William Sabol) to archaeologists conducting a survey for the proposed Route 20 by-pass in 1977. The site was recorded as an artifact scatter associated with the Archaic and Woodland periods based on information provided by the artifact collector. It appears that the artifact collection was not actually inspected by the archaeologists who recorded the site. Prior to the current investigation, the site area had not been previously investigated by archaeologist nor had it been evaluated for inclusion in the NRHP (Ohio Archaeological Site Recording Form 33LN0076; accessible on the OHPO *Online Mapping System*). The current Phase I archaeological investigation identified only two lithic artifacts within the portion of 33LN0076 intersected by the Project Area. The portion of 33LN0076 intersected by the Project Area is recommended not eligible for listing in the NRHP.

Based on the results of the Phase I archeological survey, no further archaeological work is recommended within the Project Area prior to construction. If the Project uncovers resources that might be of archeological interest within the Project Area during construction, the OHPO should be contacted immediately. If human remains should be encountered during construction activities, all ground disturbing activity must cease and local law enforcement and the OHPO must be notified. Additionally, should the Project Area be adjusted beyond the area that has been surveyed, additional Phase I archaeological survey may be completed in advance of construction, to the extent necessary or appropriate.

8.0 REFERENCES CITED

American Atlas Company
1896 *Lorain County 1896*. American Atlas Company, Chicago, Illinois.

Anderson, David G.
2001 Climate and Culture Change in Prehistoric and Early Historic Eastern North America. In *Archaeology of Eastern North America*, Eastern States Archaeological Federation, 29: 143-186.

Blank, John E.
1970 *The Ohio Archaic: A Study in Culture History*. Unpublished PhD Dissertation, University of Massachusetts, Amherst, Massachusetts.

1982 *Results of a Phase I and II Archaeological Resource Assessment of a Portion of the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Ohio Historic Preservation Office, Columbus, Ohio.

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

Broyles, Betty J.
1970 *Second Preliminary Report: The St. Albans Site, Kanawha County, West Virginia*. Report of Archaeological Investigations No. 3, West Virginia Geological and Economical Survey, Morgantown, West Virginia.

Bush, David, et al.
1981 *The Archaeological Resources of the Ohio Turnpike – Phase II Investigations at Existing and Proposed Interchanges.* Submitted to the Ohio Department of Transportation. Case Western Reserve University, Cleveland, Ohio.

Bush, David, Judith E. Thomas, Mark A. Kollecker, Renea M. Martello, and Marcia Miller
1990 *A Phase I and II Archaeological Investigation of the Proposed LOR-301/611-25.00/8.60 Project in Avon and Sheffield Townships, Lorain County, Ohio.* Submitted to the Ohio Department of Transportation. David R. Bush, Inc., Eastlake, Ohio.

Callender, Charles
1978 Shawnee. In the *Handbook of North American Indians, Northeast*, Vol. 15. Bruce G. Trigger, editor. Smithsonian Institution, Washington, D.C.

Custer, J.F.
1985 Test Excavations at the Webb Site (36CH51), Chester County, Pennsylvania. *Pennsylvania Archaeologist*, Society for Pennsylvania Archaeology, 55(1-2): 21-30.

DeLong
1972 Bedrock Geology of the Flint Ridge Area, Licking and Muskingun Couties, Ohio. *Ohio Geological Survey Report of Investigations 84.*

D.J. Lake & Company
1874 *Lorain County 1874*. D.J. Lake & Company, Philadelphia, Pennsylvania.

Ernst, James E. and Donald K. Musgrave
1976 *Soil Survey of Lorain, Ohio*. United States Department of Agriculture, Soil Conservation Service, in cooperation with Ohio Department of Natural Resources, Division of Lands and Soil, and Ohio Agricultural Research and Development Center, Columbus, Ohio.

Fiedel, Stuart J.
1987 *Prehistory of the Americas.* Cambridge University Press, Cambridge, Massachusetts.

Fowler, Melvin L.
1959 *Summary Report of Modoc Rock Shelter 1952, 1953, 1955, 1956*. Report of Investigations, No. 8, Illinois State Museum, Springfield, Illinois.

Funk, Robert E.
1978 Post-Pleistocene Adaptations. In *Handbook of North American Indians, Northeast*, Vol. 15, Bruce G. Trigger, editor. Smithsonian Institution, Washington, D.C.

1983 The Northeastern United States. In *Ancient North Americans*, Jesse D. Jennings, editor. W. H. Freeman and Company, San Francisco, California.

Griffin, James B.
1978 Late Prehistory of the Ohio Valley. In *Handbook of North American Indians, Northeast*, Vol. 15, Bruce G. Trigger, editor. Smithsonian Institution, Washington, D.C.

1983 The Midlands. In *Ancient North Americans*, Jesse D. Jennings, editor. W. H. Freeman and Company, San Francisco, California.

Grimm, Eric C. and George L. Jacobson, Jr.
2004 Late-Quaternary Vegetation History of the Eastern United States. In *The Quaternary Period in the United States, Volume 1*, edited by A.R. Gillespie, S.C. Porter, and B.F. Atwater, pp. 381-402. Elsevier Science, Philadelphia.

Hunter, William A.
1978 History of the Ohio Valley. In *Handbook of North American Indians, Northeast,* Vol. 15, Bruce G. Trigger, editor. Smithsonian Institution, Washington, D.C.

Hurt, R. Douglas
1996 *The Ohio Frontier: Crucible of the Old Northwest, 1720-1830*. Indiana University Press, Bloomington, Indiana.

Justice, Noel D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States*. Indiana University Press, Bloomington, Indiana.

Knox, James C.
1983 Responses of River Systems to Holocene Climates. In *Late-Quaternary Environments of the United States, Volume 2: The Holocene*, edited by H. E. Wright, Jr., pp. 26-41. University of Minnesota Press, Minneapolis.

Mason, Ronald J.
1962 The Paleo-Indian Tradition in Eastern North America. *Current Anthropology* III(3):231.

National Park Service (NPS)
1983 Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. *Federal Register* 48(190):44716-44740.

Nichols, J.B.
1924 The History of Northern Lorain County (The Reprint Company).

Ohio Department of Natural Resources (ODNR), Division of Geological Survey
2006 *Bedrock Geologic Map of Ohio*. Ohio Department of Natural Resources, Division of Geological Survey Map, Columbus, Ohio.

Ohio Historic Preservation Office (OHPO)
1994 *Archaeology Guidelines*. Ohio Historical Society, Columbus, Ohio.

Ohio Historical Society
2005 Lorain County. Ohio Central: An Online Encyclopedia of Ohio.

Ohio Rural Community Assistance Program (RCAP)
2006 *Lorain County Rural Wastewater District, Phase 1 Wastewater Collection and Treatment Improvements Project, Carlisle and Eaton Townships, Lorain County, Ohio*. Ohio Rural Community Assistance Program, Little Hocking, Ohio.

Potter, Martha A.
1968 *Ohio's Prehistoric Peoples*. Ohio Historical Society, Columbus, Ohio.

Prufer, Olaf H.
1975 Chesser Cave: A Late Woodland Phase in Southeastern Ohio. In *Studies in Ohio Archaeology*, Revised Edition, Olaf H. Prufer and Douglas H. McKenzie, editos. The Kent State University Press, Kent, Ohio.

Prufer, Olaf H. and Raymond S. Baby
1963 *Indians of Ohio.* Ohio Historical Society, Columbus, Ohio.

Prufer, Olaf H. and Dana A. Long
1983 *The Archaic of Northeastern Ohio.* Kent State Research Papers in Archaeology, No. 6. Kent State University, Kent, Ohio.

Riegel, Veronica
1994 Phase I and II Cultural Resources Report on Columbia Gas of Ohio Incorporated's Proposed 6.83 Mile Natural Gas Pipeline in Lorain County, Ohio. Submitted to Columbia Gas of Ohio, Inc. 3D/Environmental, Cincinnati, Ohio.

Seeman, Mark F.
1984 Adena "Houses" and Their Implications for Early Woodland Settlement Models in the Ohio Valley. In *Early Woodland Archaeology*, Kenneth B. Farnsworth and Thomas E. Emerson, editors, pp. 598-608. Center for American Archaeology Press, Kampsville, Illinois.

Seeman, Mark F. and Olaf H. Prufer
1982 An Updated Distribution of Ohio Fluted Points. In *Midcontinental Journal of Archaeology* 7(2).

Shane, Orrin C., III
1967 The Mixter Site: An Early Woodland Village in Lorain County, Ohio. In *Studies in Ohio Archaeology*, edited by O.H. Prufer and D.H. McKenzie, The Press of Western Reserve University, Cleveland, Ohio.

Sprague, Rae Norris
1989 *Reconnaissance Survey for the Proposed AT&T Medina-Whitehouse Fiber Optic Cable through Medina, Lorain, Erie, Sandusky, Ottawa, Wood and Lucas County, Ohio.* Submitted to Baker and Associates. Archaeological Services Consultants Group, Inc., Columbus, Ohio.

Tuck, James A.
1977 A Look at Laurentian. In *Current Perspectives in Northeastern Archaeology*, Robert E. Funk and Charles F. Hayes, editors. Researches and Transactions of the New York State Archaeological Association 17(1):31-40.

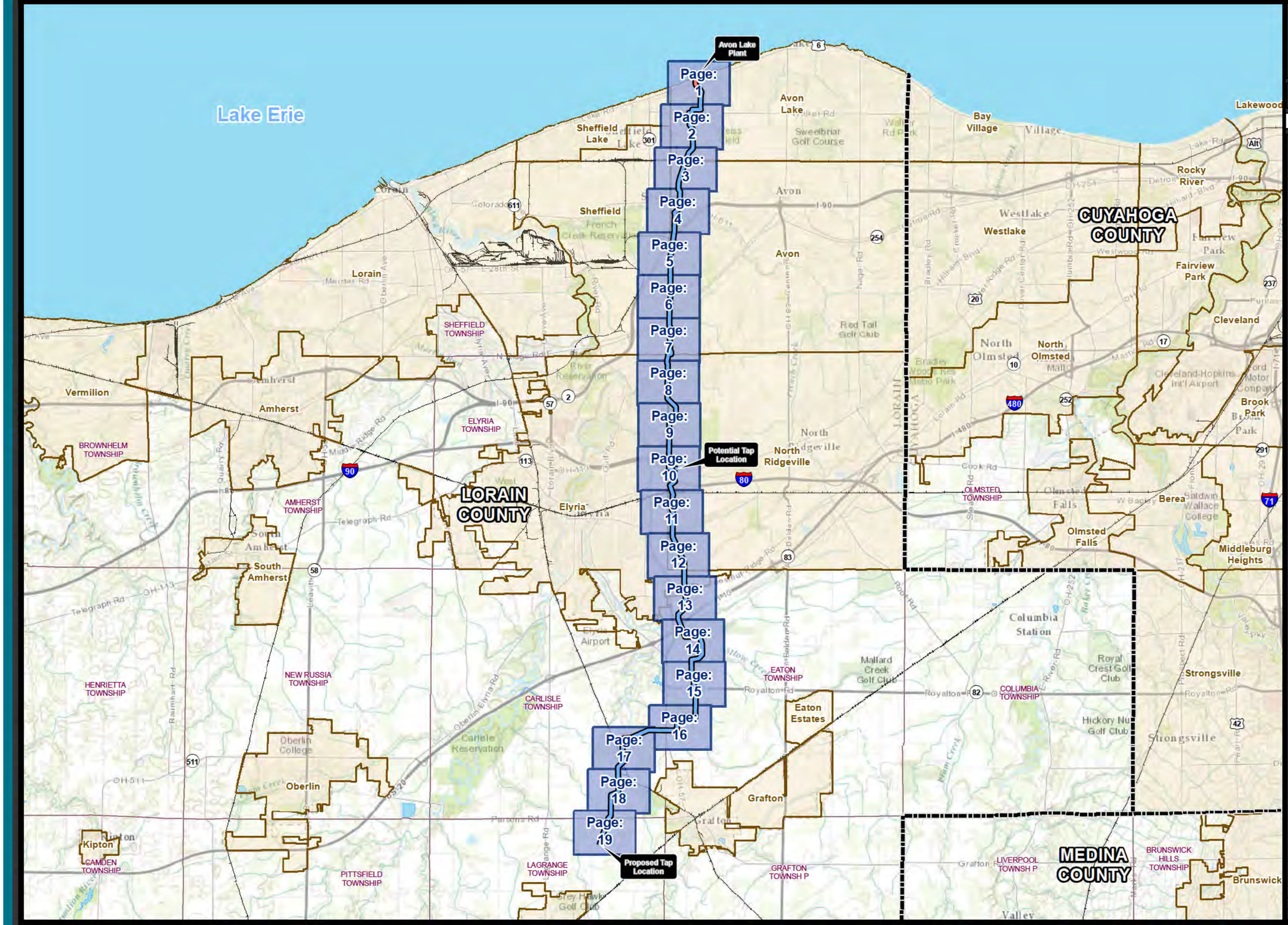
United States Department of Agriculture (USDA)-Natural Resources Conservation Service (NRCS)
2014 Official Soil Series Descriptions. Electronic Document, http://soils.usda.gov/technical/classification/osd/index.html, accessed June 2014.

United States Geological Survey (USGS)
2014 Science In Your Watershed. Electronic Document, http://water.usgs.gov/lookup/getwatershed?04110001, accessed June 2014.

Wallace, Anthony F.C.
1969 *The Death and Rebirth of the Seneca.* Vintage Books, New York, New York.

Works Progress Administration
1940 *Ohio Guide*. Oxford University Press, New York.

APPENDIX A: SURVEY RESULTS MAPS



nrg

The power to change life.

AVON LAKE GAS ADDITION PROJECT

Appendix A Overview Map

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Map Extent Boundary
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Lake
- Railroad

Roads

- Interstate
- US Highway
- State Highway

DRAFT

1:122,000

0 0.45 0.9 1.8 2.7 3.6 Miles

N W E S



nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014	Page: 1
Drawn by: JPS	

Preview B.vd

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014	Page: 2
Drawn by: JPS	

[redacted]

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

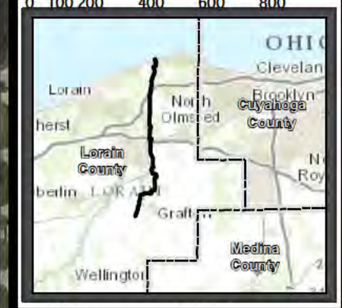
Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014 | Page: 3

Drawn by: JPS

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014	Page: 4
Drawn by: JPS	S:\NRG\Avon Lake\GIS\ARCH\Archaeological Report\MXD\Appendix A\Avon Lake Project MapBook.mxd

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

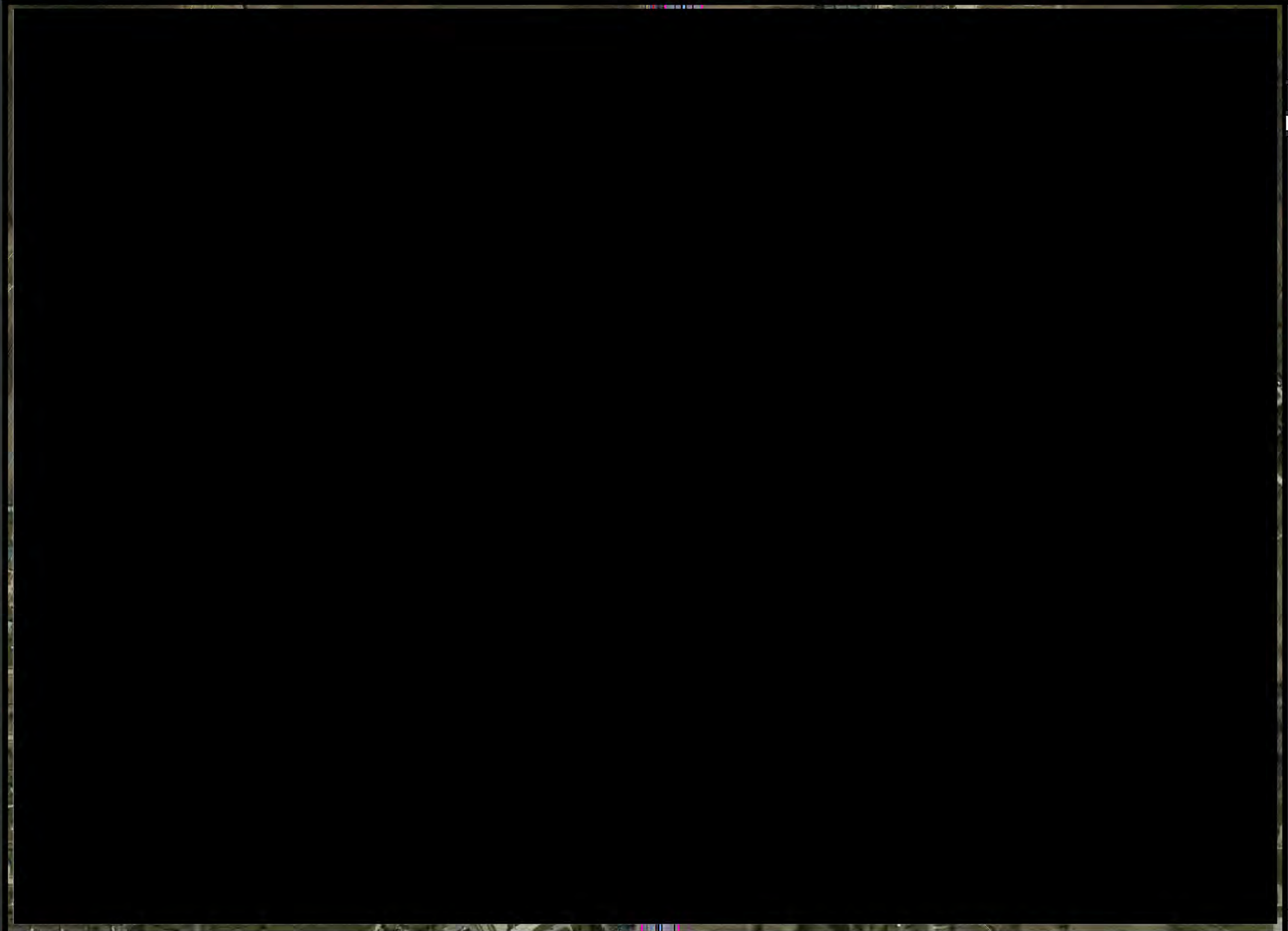
1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014

Drawn by: JPS



nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014	Page: 6
Drawn by: JPS	

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N W E S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014

Drawn by: JPS

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014

Drawn by: JPS

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N W E S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014	Page: 9
Drawn by: JPS	S:\NRG\Avon Lake\GIS\MXD\20140602\Latest Report\MXD\Avon Lake Cultural Report DataBook.mxd

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014

Drawn by: JPS

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014

Drawn by: JPS



nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014 | Page: 12

Drawn by: JPS

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014 | Page: 13

Drawn by: JPS

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

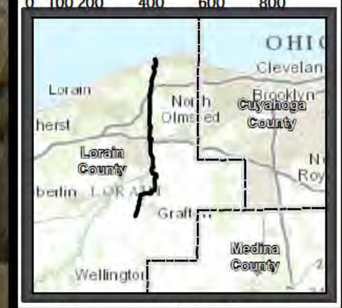
Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N W E S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014

Drawn by: JPS

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014	Page: 15
Drawn by: JPS	S:\NRG\Avon Lake\GIS\MXD\ 2014\GSC\Arch Report\MXD\Avon Lake Cultural Report\MapBook.mxd

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N W E S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014	Page: 16
Drawn by: JPS	S:\NRG\Avon Lake\GIS\MXD\ 20140GCultural Report\MXDs\ Avon Lake Cultural Report DataBook.mxd

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N W E S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014 | Page: 17

Drawn by: JPS

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N W E S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014

Drawn by: JPS

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Mile Post Location
- Archaeological APE
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Phase 1 Archaeological Survey Area (Pedestrian Survey)
- Archaeological Survey Area (Shovel Test Survey)
- Previous Identified Archaeological Survey
- Areas Exluded from Survey
- Workspace
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 6/12/2014

Drawn by: JPS

APPENDIX B: ARCHAEOLOGICAL SHOVEL TESTING DESCRIPTIONS

Introduction

Soils and soil-forming processes are crucial links to understanding past landscapes and can have direct implications for archaeological understanding of precontact through post-contact land use. For these reasons, this section serves the purpose of 1) identifying soil series in shovel tested areas; 2) describing the soil parent material, typical landforms on which these soil series form, and the precontact vegetation within these areas; and 3) describing the field results from these shovel tests including current land use/vegetation, methods and size of area tested, descriptions of soil horizons encountered, and whether or not archaeological material was recovered. For a better understanding of these results, a brief summary of soil forming processes and soil horizons is be presented below.

Most soils exhibit some horizonation, or genetic layering that distinguishes them from sediments, such as sand on a beach. The formation of horizons by pedogenic or soil forming processes dictate that over time certain horizons will take on unique functions and characteristics that set it apart from the horizons above and below. The rate and intensity to which these soil horizons form can be linked to five factors: 1) climate; 2) plant and animal activity; 3) parent material; 4) topographic position; and 5) time. Factors such as climate and plant and animal activity determine how much and when important inputs such water and organic materials can enter or be taken out of the soil. Other factors such as parent material determine the original mineral makeup of the soil which can affect the overall soil productivity in terms of plant and animal life. Topographic position as a soil-forming factor largely affects the movement of groundwater and also has a direct effect on plant and animal life. The last soil-forming factor, time, indicates that soils forming on landscapes that have been stable for longer geological periods, such as level upland locations, will have more developed horizonation versus soils forming on unstable, geologically young landscapes, such as floodplains and beaches.

Shovel Test Area AV57.3

The United States Department of Agriculture to Natural Resources Conversation Service (USDA-NRCS) Soil Survey Division recognizes two soil series within Shovel Test Area AV57.3 (USDA-NRCS Soil Survey Staff 2014). The Miner series consists of very deep, very poorly drained soils formed in low-lime glacial till principally derived from acid shale on lake plains and till plains. Permeability is slow. Slopes range from 0 to 2 percent. Native vegetation is dominated by elm, soft maple, and ash. The Mahoning series consists of very deep somewhat poorly drained soils formed in till on till plains. Saturated hydraulic conductivity is moderately low in the subsoil and moderately low or low in the underlying material. Slope ranges from 0 to 15 percent. Native vegetation includes oaks, sugar maple, tulip poplar, ash, and beech.

At the time of the archaeological survey manicured grasses reduced the surface visibility of the area to less than five percent (Appendix A: Map 4). A relatively flat upland overlooking French Creek to the east was considered to have a high potential for containing buried prehistoric archaeological resources if the area proved to remain

undisturbed. As a result, five shovel tests at 15-m (49-ft) to 45-m (147-ft) intervals were conducted to assess if the area remained undisturbed (Shovel Test Area AV57.3). Little soil was identified within the excavated shovel test. Rather the area was found to contain a deposit of ash, slag, asphalt, gravel, and other similar materials associated with local industry. Anecdotal information provided by the Project's land agents confirmed that the area had previously been the dump site for local industrial fly-ash deposits. No archaeological materials were encountered in this area.

Shovel Test Area AV96 (33LN0278)

The USDA to NRCS Soil Survey Division recognizes one soil series within Shovel Test Area AV96 (USDA-NRCS Soil Survey Staff 2014). The Mahoning series consists of very deep somewhat poorly drained soils formed in till on till plains. Saturated hydraulic conductivity is moderately low in the subsoil and moderately low or low in the underlying material. Slope ranges from 0 to 15 percent. Native vegetation includes oaks, sugar maple, tulip poplar, ash, and beech.

At the time of survey, the area exhibited deciduous woodland vegetation providing little to no surface visibility (see Figures 3, 4, and 5; Appendix A: Map 8). Pedestrian survey was conducted at 10-m intervals across this portion of the Survey Area; however, no artifacts or features were identified. Due to the poor surface visibility shovel testing was conducted at 15-m intervals (Shovel Test Area AV96). Nine shovel tests were placed at 15-m intervals within this portion of the Survey Area. One shovel test was found to contain archaeological resources. Shovel test 3 contained one piece of shatter of an indeterminate chert material at 0 to 10 cmbs. Additional shovel tests were excavated at 5-meter intervals in all four cardinal directions from the positive test until two consecutive negative tests were encountered in all directions. No additional archaeological resources were identified.

A total of 17 shovel tests were excavated within this portion of the Survey Area. Soils were moderately well developed revealing two layers, and were excavated to an average depth of 29 cmbs. The initial layer consisted of silt clay soil and ranged in color from very dark grayish brown (10YR3/2) to brown (10YR4/3). The initial layer extended to depths ranging from 6 to 30 cmbs overlying a second layer consisting of dark grayish brown (10YR4/2) to light brownish gray (10YR6/2) clay mottled by yellowish brown (10YR5/6) to brownish yellow (10YR6/6) clay oxidation channels. A boundary was drawn around a 5-m buffer of the single positive shovel test (see Figure 5). The 0.02-acre area was designated Site 33LN0278.

Shovel Test Area AV125 (Site 33LN0279)

The USDA to NRCS Soil Survey Division recognizes one soil series within Shovel Test Area AV125 (USDA-NRCS Soil Survey Staff 2014). The Fitchville series consists of very deep, somewhat poorly drained soils formed in stratified Wisconsinan age glaciolacustrine sediments on lake plains and slackwater terraces. Permeability is moderate in the surface, moderately slow in the subsoil and moderate or moderately slow

in the substratum. Slope ranges from 0 to 12 percent. Native vegetation includes sugar maple, beech, red oak, pin oak, elm, and hickory.

At the time of survey, the area exhibited deciduous woodland/wetland vegetation providing little to no surface visibility (see Figures 3, 6, 7, and 8; Appendix A: Map 11). The area exhibited very wet conditions and appeared to be a wetland environment. Pedestrian survey was conducted at 10-m intervals across this portion of the Survey Area, which led to the discovery of a well shaft feature and an associated system of drainage ditches. The well shaft feature and the associated system of drainage ditches were mapped within the Survey Area, though the drainage system appears to extend to the east beyond the Survey Area. Due to the poor surface visibility four shovel tests set at 5-m intervals in all four cardinal directions from the well shaft feature were excavated (Shovel Test Area AV125). All four shovel tests were negative for archaeological material and all four exhibited soils indicative of a wetland environment.

The soils were moderately well developed revealing two layers, and were excavated to an average depth of 41 cmbs. The initial layer consisted of silt clay to clay soil and ranged in color from very dark grayish brown (10YR3/2) to dark gray (10YR4/1). The initial layer extended to depths ranging from 15 to 39 cmbs overlying a second layer consisting of gray (10YR6/1) to light brownish gray (10YR6/2) clay mottled by yellowish brown (10YR5/6) to brownish yellow (10YR6/6) clay oxidation channels. A boundary was drawn around historic-period features identified within the Survey Area (see Figure 8). The 2.12-acre area was designated Site 33LN0279.

Shovel Test Area AV167 (Site 33LN0076)

The USDA to NRCS Soil Survey Division recognizes two soil series within Shovel Test Area AV167 (USDA-NRCS Soil Survey Staff 2014). Saturated hydraulic conductivity is moderately low in the subsoil and moderately low or low in the underlying material. Slope ranges from 0 to 15 percent. Native vegetation includes oaks, sugar maple, tulip poplar, ash, and beech. The Trumbull series consists of deep, poorly drained soils formed in low-lime glacial till. These soils have slow to very slow permeability. Slope gradients range from 0 to 6 percent. Native vegetation includes elm, soft maple, pin oak, and ash. The Mahoning series consists of very deep somewhat poorly drained soils formed in till on till plains.

At the time of survey, the portion of 33LN0076 intersected by the Survey Area fell within two separate agricultural fields (see Figures 3, 22, and 23; Appendix A: Map 14). The majority of the intersected portion of the site fell within a relatively flat open field exhibiting tall grassland vegetation which allowed for little to no surface visibility. A very small portion of 33LN0076 intersected by the Survey Area fell within an actively cultivated agricultural field exhibiting remnant soybean detritus from the previous season as well as weed growth, which allowed for 55 to 65 percent ground surface visibility.

Pedestrian survey was conducted at 5-m intervals across the entire portion of 33LN0076 intersected by the Survey Area. No artifacts or features were identified. Due to the poor

surface visibility within the agricultural field exhibiting tall grassland vegetation, the entire portion of 33LN0076 intersected by the Survey Area and falling within the field exhibiting tall grassland vegetation was shovel tested at 15-m intervals (Shovel Test Area AV167).

Fifty shovel tests were placed at 15-m intervals within the portion of 33LN0076 intersected by the Survey Area. Two shovel tests were found to contain archaeological resources. Shovel test 12 contained one complete flake of an indeterminate chalcedony material at 20 to 30 cmbs. Shovel test 14 contained one piece of shatter of a material comparable to Onondaga chert at 10 to 20 cmbs. Additional shovel tests were excavated at 5-meter intervals in all four cardinal directions from each positive test until two consecutive negative tests were encountered in all directions. No additional archaeological resources were identified.

A total of 66 shovel tests were excavated within the portion of 33LN0076 intersected by the Survey Area. Soils were moderately well developed revealing two layers, and were excavated to an average depth of 39 cmbs. The initial layer (Ap horizon) consisted of silt and clay silt soil and ranged in color from dark grayish brown (10YR4/2) to brown (10YR5/3). The Ap horizon extended to depths ranging from 20 to 36 cmbs overlying a second layer consisting of dark gray (10YR4/1) to light brownish gray (10YR6/2) clay mottled by dark yellowish brown (10YR4/6) to yellowish brown (10YR5/8) clay oxidation channels. The location and dimensions of the 38.29-acre site area previously reported as 33LN0076 were not altered or modified based on the current survey results.

Shovel Test Area AV183

The USDA to NRCS Soil Survey Division recognizes one soil series within Shovel Test Area AV183 (USDA-NRCS Soil Survey Staff 2014). The Mahoning series consists of very deep somewhat poorly drained soils formed in till on till plains. Saturated hydraulic conductivity is moderately low in the subsoil and moderately low or low in the underlying material. Slope ranges from 0 to 15 percent. Native vegetation includes oaks, sugar maple, tulip poplar, ash, and beech.

At the time of the archaeological survey grassland vegetation reduced the surface visibility of the area to less than five percent (Appendix A: Map 15). A small ridge overlooking Hill Ditch to the north was considered to have a high potential for containing buried prehistoric archaeological resources. As a result, six shovel tests at 15-m (49-ft) intervals were conducted focusing on elevated area overlooking the stream (Shovel Test Area AV183). Soils were moderately developed revealing two horizons and were excavated to an average depth of 36 cmbs. The initial horizon consisted of silt loam to clay silt ranging in color from dark grayish brown (10YR4/2) to brown (10YR5/3) and extended to depths of 22 to 30 cmbs. The subsoil, excavated to depths of 30 to 65 cmbs, consisted of grayish brown (10YR5/2) to light brownish gray (10YR6/2) clay exhibiting brownish yellow (10YR6/6) oxidation staining. No archaeological materials were encountered in this area.

Shovel Test Area 197 (Site 33LN0280)

The USDA to NRCS Soil Survey Division recognizes two soil series within Shovel Test Area AV197 (USDA-NRCS Soil Survey Staff 2014). The Bogart series consists of very deep, moderately well drained soils that formed in stratified outwash deposits on terraces, beach ridges, and outwash plains. Permeability is moderate or moderately rapid in the solum and rapid in the substratum. Slopes range from 0 to 12 percent. Native vegetation includes sugar maple, beech, and oak. The Haskins series consists of very deep, somewhat poorly drained soils that are moderately deep or deep to dense till. They formed in loamy water-sorted or glaciolacustrine material 51 to 102 cm (20 to 40 inches) thick and in the underlying till. These soils are on lake plains and till plains. Slope ranges from 0 to 6 percent. Native vegetation is deciduous, mixed hardwood forest.

At the time of survey, the area exhibited soy detritus from the previous season and very heavy weed growth, which limited the surface visibility to less than five percent (see Figures 3, 12, and 13; Appendix A: Map 17). Pedestrian survey was conducted at 10-m intervals across this portion of the Survey Area; however, no artifacts or features were identified. Due to the poor surface visibility shovel testing was conducted at 15-m intervals (Shovel Test AV197). Twelve shovel tests were placed at 15-m intervals within this portion of the Survey Area. One shovel test was found to contain archaeological resources. Shovel test 3 contained one complete overshot flake of a material comparable to Onondaga chert at 20 to 30 cmbs. Additional shovel tests were excavated at 5-meter intervals in all four cardinal directions from the positive test until two consecutive negative tests were encountered in all directions to delineate the site boundary. During the site delineation process, four more positive shovel tests were excavated before two consecutive negative shovel tests at 5-m intervals were encountered in all four cardinal directions from all positive tests. Shovel test 14 contained one complete flake of Flint Ridge chert at 0 to 10 cmbs. Shovel test 15 contained one complete bifacial preform crafted of a material comparable to Onondaga chert at 20 to 30 cmbs (see Figure 14). Shovel test 25 contained on piece of shatter of an indeterminate chert material at 0 to 10 cmbs and shovel test 29 contained one proximal flake of an indeterminate chert material at 0 to 10 cmbs. No additional archaeological materials were identified at Site 33LN0280 beyond the five lithic artifacts discussed above.

A total of 32 shovel tests were excavated within this portion of the Survey Area. Soils were moderately well developed revealing two layers, and were excavated to an average depth of 27 cmbs. The initial layer (Ap horizon) consisted of silt loam soil and ranged in color from dark brown (10YR3/3) to dark grayish brown (10YR4/2). The initial layer extended to depths ranging from 19 to 40 cmbs overlying a second layer consisting of brown (10YR4/3) to dark yellowish brown (10YR4/6) sandy silt to sandy clay. A boundary was drawn around a 5-m buffer of the positive shovel test units (see Figure 12). The 0.09-acre area was designated Site 33LN0280.

Shovel Test Area AV208 (Site 33LN0281)

The USDA to NRCS Soil Survey Division recognizes one soil series within Shovel Test Area AV208 (USDA-NRCS Soil Survey Staff 2014). The Mahoning series consists of very deep somewhat poorly drained soils formed in till on till plains. Saturated hydraulic conductivity is moderately low in the subsoil and moderately low or low in the underlying material. Slope ranges from 0 to 15 percent. Native vegetation includes oaks, sugar maple, tulip poplar, ash, and beech.

Shovel Test Area AV208 consists of an actively cultivated agricultural field exhibiting relatively flat topography (Figures 3, 16, 17, and 18; Appendix A: Map 18). During the pedestrian survey, a sparse lithic surface scatter consisting of one biface fragment crafted of a material comparable to Coshocton or Onondaga chert as well as one piece of shatter and one complete flake of an indeterminate chert was identified on the ground surface. At the time of survey the site area exhibited remnant soybean detritus from the previous season, which allowed for 75 to 85 percent ground surface visibility. Pedestrian survey was conducted at 1-m intervals within a 30 m buffer of the find spot; however, no additional material was identified on the surface beyond the three lithic artifacts discussed above.

Due to excellent surface visibility, two shovel tests were excavated at the find spot to assess soil stratigraphy at the location and check for the presence of buried archaeological deposits (Shovel Test Area AV208). No additional archaeological resources were identified. Soils were moderately well developed revealing two layers, and were excavated to an average depth of 26 cmbs. The initial layer (Ap horizon) contained brown (10YR4/3) silt loam to silt clay soil. The Ap horizon extended to an average depth of 37 cmbs overlying a second layer of grayish brown (10YR5/2) clay mottled by yellowish brown (10YR5/6) clay oxidation channels. A boundary was drawn around a 5-m buffer of the surface find locations (see Figure 16). The 0.16-acre area was designated Site 33LN0281.

Shovel Test Area AV216.2 (Site 33LN0282)

The USDA to NRCS Soil Survey Division recognizes one soil series within Shovel Test Area AV216.2 (USDA-NRCS Soil Survey Staff 2014). The Mahoning series consists of very deep somewhat poorly drained soils formed in till on till plains. Saturated hydraulic conductivity is moderately low in the subsoil and moderately low or low in the underlying material. Slope ranges from 0 to 15 percent. Native vegetation includes oaks, sugar maple, tulip poplar, ash, and beech.

Shovel Test Area AV216.1 consists of a relatively flat, actively cultivated agricultural field located west of Dent Ditch (see Figures 3, 19, 20, and 21; Appendix A: Map 19). During the pedestrian survey, an isolated lithic artifact fashioned out of a material comparable to Coshocton or Onondaga chert was identified on the ground surface. At the time of survey the site area exhibited remnant soybean detritus from the previous season as well as weed growth, which allowed for 55 to 65 percent ground surface visibility.

Pedestrian survey was conducted at 1-m intervals within a 30 m buffer of the find spot; however, no additional material was identified on the surface.

Due to excellent surface visibility, a single shovel test was excavated at the find spot to assess soil stratigraphy at the location and check for the presence of buried archaeological deposits (Shovel Test Area AV216.2). No additional archaeological resources were identified. Soils were moderately well developed revealing two layers, and were excavated to a depth of 35 cmbs. The initial layer (Ap horizon) contained brown (10YR5/3) silt loam to silt clay soil. The Ap horizon extended to a depth of 25 cmbs overlying a second layer of grayish brown (10YR5/2) clay mottled by dark yellowish brown (10YR4/6) clay oxidation channels. A boundary was drawn around a 5-m buffer of the surface find location (see Figure 19). The 0.02-acre area was designated Site 33LN0282.

APPENDIX C: ARTIFACT CATALOG

33LN0278

State Site No.	Field No.	Provenience	Depth (cmbs)	Bag No.	Catalog No.	Weight (g)	Length (mm)	Width (mm)	Thickness (mm)	Period	Class	Type	Morphology1	Material
33LN0278	AV96-1	ST 3	0-10	1	1.1	0.1	10.4	5.5	2.4	Prehistoric	Lithic; Chipped Stone	Debitage	Shatter	Indeterminate Chert

33LN0280

State Site No.	Field No.	Provenience	Depth (cmbs)	Bag No.	Catalog No.	Weight (g)	Length (mm)	Width (mm)	Thickness (mm)	Period	Class	Type	Morphology1	Material
33LN0280	AV197-1	ST 3	20-30 cmbs	1	1.1	5.1	41.67	28.88	10.18	Prehistoric	Lithic; Chipped Stone	Debitage	CompFlake	cf. Onondaga Chert
33LN0280	AV197-1	ST 14	0-10 cmbs	2	2.1	4.8	26.05	22.68	10.63	Prehistoric	Lithic; Chipped Stone	Debitage	CompFlake	Flint Ridge Chert
33LN0280	AV197-1	ST 15	20-30 cmbs	3	3.1	22.2	56.17	36.18	12.36	Prehistoric	Lithic; Chipped Stone	Tool	CompBiface	cf. Onondaga Chert
33LN0280	AV197-1	ST 25	0-10 cmbs	4	4.1	1.4	18.08	11.45	6.22	Prehistoric	Lithic; Chipped Stone	Debitage	Shatter	Indeterminate Chert
33LN0280	AV197-1	ST 29	0-10 cmbs	5	5.1	0.6	19.83	17.87	1.76	Prehistoric	Lithic; Chipped Stone	Debitage	ProxFlake	Indeterminate Chert

33LN0281

State Site No.	Field No.	Provenience	Depth (cmbs)	Bag No.	Catalog No.	Weight (g)	Length (mm)	Width (mm)	Thickness (mm)	Period	Class	Type	Morphology1	Material
33LN0281	AV208-1	SF 1	Surface	1	1.1	3.0	25.50	18.96	5.00	Prehistoric	Lithic; Chipped Stone	Tool	Biface	cf. Coshocton Chert
33LN0281	AV208-1	SF 2	Surface	2	2.1	7.3	29.13	27.09	10.75	Prehistoric	Lithic; Chipped Stone	Debitage	Shatter	Indeterminate Chert
33LN0281	AV208-1	SF 3	Surface	3	3.1	1.0	16.18	16.98	3.56	Prehistoric	Lithic; Chipped Stone	Debitage	CompFlake	Indeterminate Chert

33LN0282

State Site No.	Field No.	Provenience	Depth (cmbs)	Bag No.	Catalog No.	Weight (g)	Length (mm)	Width (mm)	Thickness (mm)	Period	Class	Type	Morphology1	Material
33LN0282	AV216.2-1	SF 1	Surface	1	1.1	24.9	55.7	40.5	8.5	Prehistoric	Lithic; Chipped Stone	Tool	CompFlakeTool	cf. Coshocton Chert

33LN0076

State Site No.	Field No.	Provenience	Depth (cmbs)	Bag No.	Catalog No.	Weight (g)	Length (mm)	Width (mm)	Thickness (mm)	Period	Class	Type	Morphology1	Material
33LN0076	AV167-1	ST 14	10-20 cmbs	1	1.1	0.2	11.51	7.88	2.19	Prehistoric	Lithic; Chipped Stone	Debitage	Shatter	cf. Onondaga Chert
33LN0076	AV167-1	ST 12	20-30 cmbs	2	2.1	0.2	12.93	8.81	1.89	Prehistoric	Lithic; Chipped Stone	Debitage	CompFlake	Indeterminate Chalcedony

APPENDIX D: PROJECT PERSONNEL

LIST OF PERSONNEL

Principal Investigators	Andrew Bielakowski, M.A., RPA Mark Doperalski, M.A., RPA
Field Archaeologists	
Field Directors	Mark Doperalski, M.A., RPA Kyle Spurgeon, M.A.
Field Technicians	Ryan Lisson, B.S. Aaron Gordon, B.S. Frank Koep, B.A.
Graphics and GIS	Jason Sphar, B.A.

OHIO HISTORY CONNECTION

In reply refer to
2014-LOR-28367-2

September 11, 2014

Andrew Bielakowski
Environmental Resources Management
1701 Golf Road, Suite 1-700
Rolling Meadows, IL 60008

Dear Mr. Bielakowski:

RE: NRG Ohio Pipeline, Lorain County, Ohio

This is in response to the receipt, on July 22, 2014, of *A Phase I Archaeological Investigation for the NRG Ohio Pipeline Company's Proposed Pipeline Project, Lorain County, Ohio.* The comments of the Ohio Historic Preservation Office are submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended.

Subsurface testing and intensive visual inspection of the project area resulted in the identification of five previously unrecorded archaeological sites. These sites, 33 LN 278-282, range from prehistoric isolated find spots to historic farmstead remnants. These sites are not likely to yield additional information about Ohio prehistory or history. Based on the information provided, I concur with the opinion that these properties are not eligible for inclusion in the National Register of Historic Places. Therefore the project will not affect historic properties. No further coordination is required unless the project changes or additional archaeological remains are discovered during the course of the project. In such a situation, this office should be contacted as per 36 CFR 800.13.

If you have any questions, please contact me at (614) 298-2000, or by email at nyoung@ohiohistory.org.

Sincerely,

Nathan J. Young, Project Reviews Manager
Resource Protection and Review

Environmental Resources Management

1701 Golf Road
Suite 1-700
Rolling Meadows, IL
60008-4242

+1 847 258 8900
+1 847 258 8901 (fax)

December 19, 2014

Mr. Mark Epstein
Ohio Historic Preservation Office
800 East 17th Avenue
Columbus, Ohio 43211-2474

Subject: NRG Ohio Pipeline Company LLC Pipeline Project
Lorain County, Ohio
NADB# 19553

Dear Mr. Epstein:

NRG Ohio Pipeline Company LLC ("NRG Ohio Pipeline") is developing an approximately 20-mile natural gas pipeline in Lorain County, Ohio in order to provide natural gas as a fuel source to the Avon Lake Power Plant, which is owned by an affiliate of NRG Ohio Pipeline ("Pipeline Project or Project"). The proposed Project will require a permanent 50 foot right-of-way ("ROW"), typically, for operation and maintenance and up to 100 additional feet of temporary ROW for construction. The permanent and temporary ROWs have been reduced in some areas to reduce environmental impacts and to incorporate landowner requests.

Environmental Resources Management ("ERM"), on behalf of NRG Ohio Pipeline, submitted the results of our initial Phase I archaeological investigation on July 15, 2014. Since that time, NRG Ohio Pipeline has initiated easement acquisition efforts for the required ROW. Some affected landowners have requested adjustments to the proposed route, many of which NRG Ohio Pipeline has incorporated. To account for these route adjustments, ERM performed an additional Phase I archaeological investigation in September and October 2014, where the route has been adjusted outside of the original survey corridor. The results of this investigation are provided in the attached Addendum I report.

Thank you in advance for your time and consideration. If you have any questions or require additional information about the proposed Project, please do not hesitate to contact me at 443-207-0519, or via email at andrew.bielakowski@erm.com.

Sincerely,

Andrew Bielakowski
Principal Investigator

Enclosure: Addendum I Phase I Archaeological Investigation Report

Cc: Nathan Young, Ohio Historic Preservation Office
Nate Rozic, NRG
Doni Murphy, ERM
Matt Teichert, ERM

Phase I Archaeological Investigation for the NRG Ohio Pipeline Company's Proposed Pipeline Project Lorain County, Ohio

Addendum I

Municipalities Crossed: Avon, Avon Lake, Elyria, and North Ridgeville
Townships Crossed: Eaton, LaGrange, and Carlisle

National Archaeological Database No. 19553

Lead Public Agency:
Ohio Power Siting Board

Prepared For:
NRG Ohio Pipeline Company LLC
211 Carnegie Center
Princeton, New Jersey 08540

Prepared By:
Environmental Resources Management
1701 Golf Road, Suite 1-700
Rolling Meadows, IL 60008

Principal Investigators and Report Authors:
Andrew Bielakowski, M.A.
Mark Doperalski, M.A., RPA

December 2014

ABSTRACT

Environmental Resources Management (ERM) conducted a Phase I archaeological survey on behalf of NRG Ohio Pipeline Company LLC ("NRG Ohio Pipeline") for a proposed natural gas pipeline in May 2014, which was reported in *Phase I Archaeological Investigation for the NRG Ohio Pipeline Company's Proposed Pipeline Project, Lorain County, Ohio* (Bielakowski and Doperalski 2014). Since June 2014, NRG Ohio Pipeline has been working with affected landowners to acquire the necessary easements. Some affected landowners have requested adjustments to the proposed route, many of which NRG Ohio Pipeline have been able to incorporate. To account for these route adjustments, this addendum to the Bielakowski and Doperalski 2014 Report details the results of additional survey work completed in September and October 2014 where the route has been adjusted outside of the May 2014 survey corridor.

NRG Ohio Pipeline is developing an approximately 20-mile natural gas pipeline in Lorain County, Ohio in order to provide natural gas as a fuel source to the Avon Lake Power Plant, which is owned by an affiliate of NRG Ohio Pipeline ("Project"). The Avon Lake Power Plant is a 734 MW coal-fired generating facility located in Avon Lake, Ohio ("Power Plant").[1] The Power Plant is owned by NRG Power Midwest LP, which is a subsidiary of NRG Energy, Inc. ("NRG Midwest"). The Power Plant was slated for retirement by the facility's prior owner as a result of significant expenditures required to meet increasingly stringent environmental requirements. NRG Midwest has decided to move ahead with a gas addition project, which will keep the facility in operation on natural gas beyond its planned deactivation date (the "Avon Lake Gas Addition Project"). To add natural gas as a fuel supply for the Power Plant, the proposed natural gas pipeline must be designed, permitted and constructed. The Avon Lake Gas Addition Project will bring environmental, economic, employment, and electric supply reliability benefits to the State. The expected operation date for the pipeline is April 2016.

The proposed 24-inch diameter high-grade steel pipeline will extend south from the Power Plant, which is located along the Lake Erie shoreline in the City of Avon Lake, to a proposed supply tap location southwest of the Village of Grafton (the "Proposed Route"). The Proposed Route is the most feasible direct route between these two points upon evaluating and balancing all factors, including environmental, geographic, cultural, and social and constructability considerations, while taking into account landowner concerns and requests.

Approximately 3,922 feet of the proposed pipeline will be aboveground. The pipeline will require a permanent (operation) right-of-way ("ROW") ranging from 25 to 50 feet in width and a temporary (construction) ROW of up to an additional 50 feet. In some areas, additional temporary workspace areas ("TWAs") outside of the temporary construction ROW will be needed for short durations during construction. Existing public and private

[1] The Power Plant also has one oil-fueled unit.

roads will be utilized for access to most of the construction ROW; however, approximately 11,806 feet (2.2 miles) of 25-foot-wide temporary access roads are anticipated. The required regulating station will occupy up to approximately one acre in size.

The proposed Project will require siting approval from the Ohio Power Siting Board ("OPSB") in accordance with Ohio Administrative Code 4906. Ohio Revised Code 149.53 states that state agencies, such as OPSB, should cooperate and work with the Ohio Historic Preservation Office ("OHPO") during the planning and construction of state-reviewed projects. Therefore, OPSB requires consultation with the OHPO regarding the protection of National Register of Historic Places ("NRHP") properties, including any sites that are eligible for listing, or state significant historic properties. The proposed Pipeline Project will require additional approvals from other state and federal agencies, including a Section 404 permit from the U.S. Army Corps of Engineers. Therefore, the proposed Pipeline Project would be subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended.

As a result, ERM, on behalf of NRG, conducted a Literature Review and a Phase I archaeological survey in the spring of 2014 for the proposed Project. Subsequently, ERM conducted an additional Phase I archaeological survey in September and October of 2014 to supplement survey work completed in the spring of 2014. This addendum report discusses only those results of the September/October 2014 (Addendum I) investigation and provides survey results for the portions of the Project Area where route adjustments have been made to the Project route. The Area of Potential Effect ("APE"), for the purposes of this investigation, included all areas of proposed construction activities or other potential ground disturbing activities outside of the original APE. However, similar to the original spring 2014 investigation, the "Project Area" encompassed the APE and an area extending beyond the APE. This additional area on either side of the anticipated right-of-way was included in the Project Area to allow for flexibility in the event of minor route or workspace adjustments. The adjusted route portions of the Project Area (Addendum I) consist of 194.75 acres (78.81 hectares), which includes a 200-foot corridor centered on the centerline of the Proposed Route, as well as anticipated TWAs outside the 200-foot corridor.

The Phase I archaeological survey was conducted within the scope of the Ohio Historic Preservation Office's ("OHPO") *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011) and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (National Park Service [NPS] 1983). The investigation was conducted to identify archaeological resources associated with the Project Area that may be potentially eligible for inclusion in the NRHP.

A portion of the Project Area (nearly 17 percent) will be located in or along previously disturbed rights-of-way or along existing developed areas. Based on both a desktop and field delineation of wetlands, nearly 30 percent of the Project Area will cross wetlands.

Areas considered to have a high potential to contain significant, intact archaeological resources include those in upland (non-wetland) areas near water sources that have not been previously disturbed by the installation and operation of existing utilities or other infrastructure, or by any other form of land development.

Because the majority of the Project Area is located in or along areas that have been previously disturbed and given the prevalence of wetlands, only a portion of the Project Area falls within areas that were assumed to have a high potential to encounter significant, intact archaeological resources. As a result, Phase I archaeological survey was only conducted within the portions of the Project Area that occur within these assumed high potential areas (the "Survey Area") (see Appendix A: Survey Results Maps). The September/October 2014 (Addendum I) Survey Area encompassed approximately 123.72 acres (50.07 hectares). The remaining 71.03 acres (28.74 hectares) of the 194.75-acre (78.81-hectare) adjusted route portion of the Project Area were excluded from survey. Fieldwork was conducted from September 2 to September 6, and October 28 to October 29, 2014. Andrew Bielakowski and Mark Doperalski served as Principal Investigators.

The Survey Area was comprised almost exclusively of agricultural lands complimented with a small extent of wooded flatlands and manicured residential yards. Nearly all of the agricultural lands that occur within the Survey Area consisted of actively cultivated fields exhibiting 30 to 50 percent surface visibility due to maturing crops. A small extent of the low-lying agricultural lands had been allowed to grow over in fallow grassland vegetation. The small extent of wooded flatlands that occur within the Survey Area often exhibited standing water or saturated soils. Pedestrian survey was completed for 122.43 acres (49.55 hectares) and pedestrian survey with shovel testing was completed for 1.29 acres (0.52 hectares). The survey included excavation of 23 shovel tests in one area that was assessed as warranting subsurface investigation.

During the Phase I archaeological survey, ERM identified one newly recorded archaeological site (33LN0284) within the Addendum I Survey Area. The site consists of a U-plan limestone-block foundation, two dilapidated wooden outbuildings, a brick-lined well shaft, and an artifact scatter comprised of historic-period artifacts and a single prehistoric-period lithic tool. The site components were identified between two extant dwellings, a gable-el at 39385 Sugar Ridge Road and a foursquare at 39325 Sugar Ridge Road. Based on the results of the September/October 2014 investigation, 33LN0284 is recommended not eligible for listing in the NRHP.

One additional find spot, AV212-1, was identified during the Phase I archaeological survey. AV212-1 is a secondary dump deposit consisting of several piles of discarded concrete slab fragments and limestone block located within the forest just beyond the edge of a cultivated field. The location of this find spot was noted for due diligence; however, it was not recorded as an official archaeological site due to the apparent recent and secondary nature of the deposit.

Based on the results of the Phase I archeological survey, no further archaeological work is recommended prior to construction within the portions of the Project Area surveyed and discussed in this Addendum I report. If the Project uncovers resources that might be of archeological interest within the Project Area during construction, the OHPO should be contacted immediately. If human remains should be encountered during construction activities, all ground disturbing activity must cease and local law enforcement and the OHPO must be notified. Additionally, should the Project Area be adjusted beyond the area that has been surveyed, additional Phase I archaeological survey may be completed in advance of construction, to the extent necessary or appropriate.

TABLE OF CONTENTS

ABSTRACT i
LIST OF FIGURES vi
LIST OF TABLES vi
1.0 INTRODUCTION 1
1.1 PROJECT DESCRIPTION 1
1.2 AGENCY INVOLVEMENT AND LEGISLATIVE REQUIREMENTS 3
1.3 PURPOSE AND NATURE OF THE ARCHAEOLOGICAL RESOURCES INVESTIGATION 3
2.0 ENVIRONMENTAL HISTORY OVERVIEW 5
2.1 GLACIAL HISTORY, GEOLOGY, AND HYDROLOGY 5
2.2 CLIMATE 5
2.3 SOILS 6
2.4 FLORA AND FAUNA 9
3.0 CULTURAL HISTORY OVERVIEW 11
3.1 PREHISTORIC PERIOD 11
3.1.1 Paleoindian Period 11
3.1.2 Archaic Period 11
3.1.3 Woodland Period 12
3.2 PROTO-HISTORIC PERIOD 13
3.3 HISTORIC PERIOD 14
3.3.1 Lorain County 16
4.0 METHODS 18
4.1 OBJECTIVES 18
4.2 AREA OF POTENTIAL EFFECT (APE) 18
4.3 ARCHAEOLOGICAL SURVEY AREA 18
4.4 ARCHAEOLOGICAL BACKGROUND RESEARCH 19
4.5 ARCHAEOLOGICAL SURVEY METHODS 19
4.5.1 Pedestrian Survey 19
4.5.2 Shovel Testing 19
4.5.3 Site Delineation 20
4.5.4 Field Documentation 20
4.6 LABORATORY METHODS 20
4.7 EVALUATION 21
5.0 LITERATURE REVIEW 22
5.1 PREVIOUS ARCHAEOLOGICAL STUDIES 22
5.2 PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES 22
6.0 ARCHAEOLOGICAL SURVEY RESULTS AND RECOMMENDATIONS 23
6.1 INTRODUCTION 23
6.2 SURVEY COVERAGE 23
6.3 SURVEY RESULTS 23
6.3.1 Site 33LN0284 25
7.0 SUMMARY AND RECOMMENDATIONS 36
8.0 REFERENCES CITED 37

APPENDIX A: SURVEY RESULTS MAPS
APPENDIX B: ARTIFACT CATALOG
APPENDIX C: PROJECT PERSONNEL

LIST OF FIGURES

FIGURE 1. PROJECT LOCATION 2
FIGURE 2. ADDENDUM I ARCHAEOLOGICAL SURVEY RESULTS 24
FIGURE 3. EXAMPLE OF SOIL STRATIGRAPHY AT SITE 33LN0284; FACING NORTH 26
FIGURE 4. SITE MAP: 33LN0284 27
FIGURE 5. FEATURE 1 AT SITE 33LN0284; FACING NORTHWEST 28
FIGURE 6. FEATURE 2 AT SITE 33LN0284; FACING SOUTHEAST 29
FIGURE 7. FEATURE 2 AT SITE 33LN0284; FACING NORTHEAST 29
FIGURE 8. FEATURE 2 AT SITE 33LN0284; FACING SOUTHEAST 30
FIGURE 9. FEATURE 2 AT SITE 33LN0284; FACING NORHTEAST 30
FIGURE 10. FEATURE 2 AT SITE 33LN0284; FACING EAST 31
FIGURE 11. FEATURE 3 AT SITE 33LN0284; FACING SOUTHWEST 31
FIGURE 12. FEATURE 4 AT SITE 33LN0284; FACING NORTHEAST 32
FIGURE 13. FEATURE 4 AT SITE 33LN0284; FACING NORTHWEST 32
FIGURE 14. LITHIC BIFACE IDENTIFIED AT 33LN0284 33

LIST OF TABLES

TABLE 1. SOIL SERIES ENCOUNTERED WITHIN THE PROJECT AREA 6
TABLE 2. POSITIVE SHOVEL TESTS AT 33LN0284 25

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

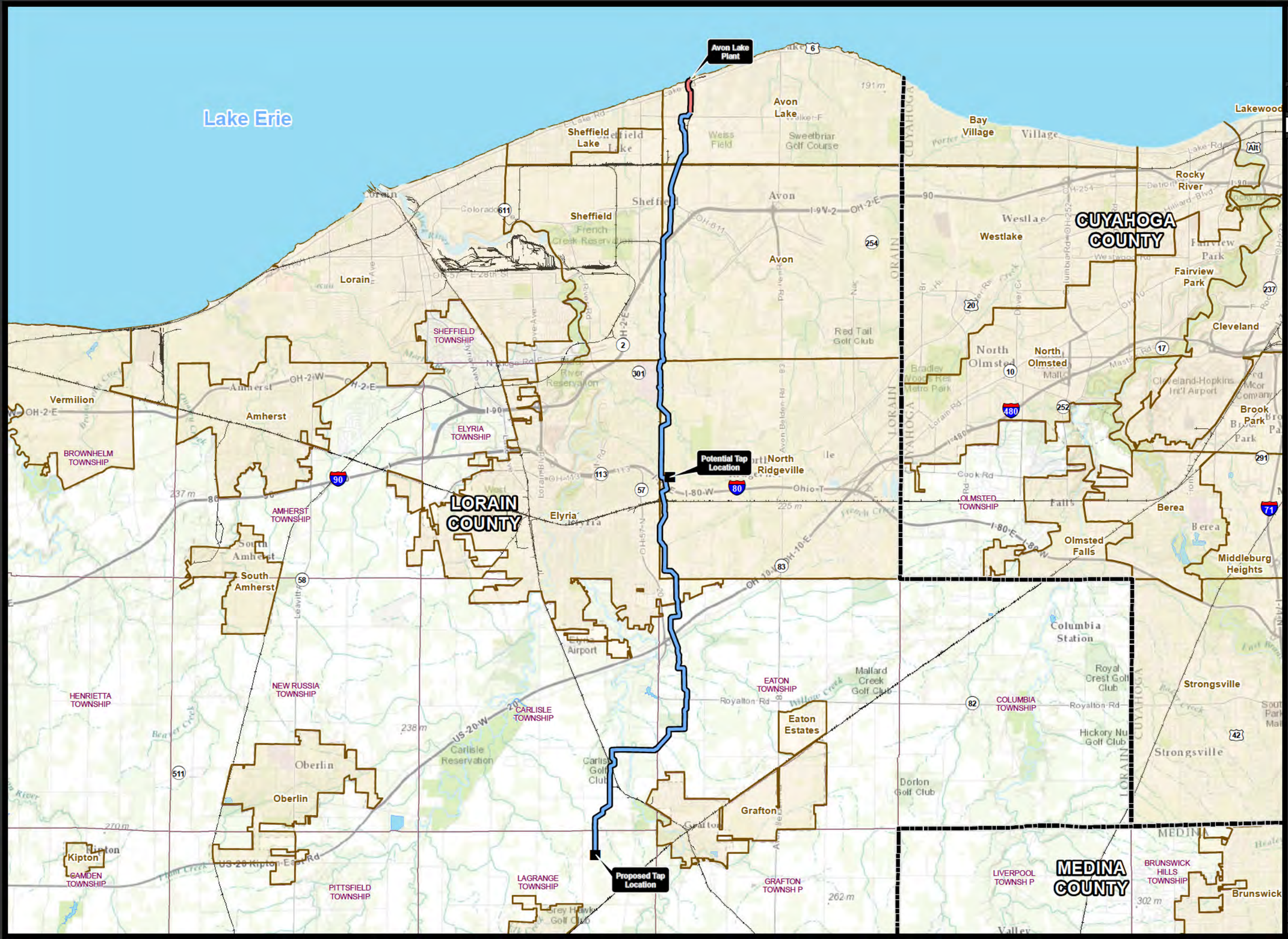
Environmental Resources Management (ERM) conducted a Phase I archaeological survey on behalf of NRG Ohio Pipeline Company LLC ("NRG Ohio Pipeline") for a proposed natural gas pipeline in May 2014, which was reported in *Phase I Archaeological Investigation for the NRG Ohio Pipeline Company's Proposed Pipeline Project, Lorain County, Ohio* (Bielakowski and Doperalski 2014). NRG Ohio Pipeline has been working with affected landowner to acquire the necessary easements throughout most of 2014. Some affected landowners requested adjustments to the proposed route, many of which NRG Ohio Pipeline have been able to incorporate. To account for these route adjustments, this addendum to the Bielakowski and Doperalski 2014 Report details the results of additional survey work completed in September and October 2014 where the route has been adjusted outside of the May 2014 survey corridor.

NRG Ohio Pipeline is developing an approximately 20-mile natural gas pipeline in Lorain County, Ohio in order to provide natural gas as a fuel source to the Avon Lake Power Plant, which is owned by an affiliate of NRG Ohio Pipeline ("Project"). The Avon Lake Power Plant is a 734 MW coal-fired generating facility located in Avon Lake, Ohio ("Power Plant").[2] The Power Plant is owned by NRG Power Midwest LP, which is a subsidiary of NRG Energy, Inc. ("NRG Midwest"). The Power Plant was slated for retirement by the facility's prior owner as a result of significant expenditures required to meet increasingly stringent environmental requirements. NRG Midwest has decided to move ahead with a gas addition project, which will keep the facility in operation on natural gas beyond its planned deactivation date (the "Avon Lake Gas Addition Project"). To add natural gas as a fuel supply for the Power Plant, the proposed natural gas pipeline must be designed, permitted and constructed. The Avon Lake Gas Addition Project will bring environmental, economic, employment and electric supply reliability benefits to the State. The expected operation date for the pipeline is April 2016.

NRG Ohio Pipeline is proposing to install a 24-inch diameter high-grade steel pipeline that will extend south from the Power Plant, which is located on the Lake Erie shoreline in the City of Avon Lake, to a proposed supply tap location west-southwest of the Village of Grafton (the "Proposed Route"). The Proposed Route is the most feasible direct route between these two points upon balancing all factors, including environmental, geographic, cultural, and social and constructability considerations, while taking into account landowner concerns and requests.

Approximately 3,922 feet of the proposed pipeline will be aboveground. The pipeline will require a permanent (operation) right-of-way ("ROW") ranging from 25 to 50 feet in width and a temporary (construction) ROW of up to an additional 50 feet. In some areas

[2] The Power Plant also has one oil-fueled unit.



nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Project Location

Legend

- Above Ground Project Route
- Below Ground Project Route
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Lake
- Railroad

Roads

- Interstate
- US Highway
- State Highway

1:122,000

0 0.45 0.9 1.8 2.7 3.6 Miles

Date: 12/15/2014

Drawn by: JPS

Figure: 1

additional temporary workspace areas ("TWAs") outside of the construction ROW will be needed for short durations. Existing public and private roads would be utilized for access to most of the construction ROW; however, approximately 11,806 feet (2.2 miles) of 25-foot-wide temporary access roads are anticipated. The required regulating station will occupy up to approximately one acre in size.

1.2 AGENCY INVOLVEMENT AND LEGISLATIVE REQUIREMENTS

The proposed Project will require siting approval from the Ohio Power Siting Board ("OPSB") in accordance with Ohio Administrative Code 4906. Ohio Revised Code 149.53 states that state agencies, such as OPSB, should cooperate and work with the Ohio Historic Preservation Office ("OHPO") during the planning and construction of state-reviewed projects. Therefore, OPSB requires consultation with the OHPO regarding the protection of National Register of Historic Places ("NRHP") properties, including any sites that are eligible for listing, or state significant historic properties. The proposed Pipeline Project will require additional approvals from other state and federal agencies, including a Section 404 permit from the U.S. Army Corps of Engineers. Therefore, the proposed Pipeline Project would be subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended.

1.3 PURPOSE AND NATURE OF THE ARCHAEOLOGICAL RESOURCES INVESTIGATION

The Addendum I Phase I archaeological investigation was conducted within the scope of the Ohio Historic Preservation Office's ("OHPO") *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011) and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (National Park Service [NPS] 1983). This addendum report discusses only those results of the September/October 2014 (Addendum I) investigation and provides survey results for the portions of the Project Area where route adjustments had been made to the Project route as previously planned. The Area of Potential Effect ("APE"), for the purposes of this investigation, included all areas of proposed construction activities or other potential ground disturbing activities outside of the original APE. However, similar to the original spring 2014 investigation, the "Project Area" encompassed the APE and an area extending beyond the APE. The investigation was conducted to identify archaeological resources within the Project Area that may be potentially eligible for inclusion in the NRHP.

This supplemented Phase I archaeological investigation consisted of a literature search of documents of previously recorded sites within one mile (1.6 km) of the revised Project centerline and of previously conducted surveys within the Project Area. The archaeological investigation also consisted of a Phase I archaeological survey to identify any intact archaeological sites within the Project Area. During September and October of 2014, approximately 123.72 acres (50.07 hectares) were surveyed.

This report describes survey methodology, environmental and cultural settings, previous investigations, results, and recommendations for the Project.

2.0 ENVIRONMENTAL HISTORY OVERVIEW

This chapter is designed to give a brief overview of the environmental landscape of the Project Area.

2.1 GLACIAL HISTORY, GEOLOGY, AND HYDROLOGY

The Project Area falls within the Erie Lake Plain and Mautnee Lake Plain Physiographic Regions within the Huron-Erie Lake Plains Section of the Central Lowlands Province (Brockman 1998). The topography of the region can best be described as a relatively flat to gently rolling lake plain dissected by numerous drainages and exhibiting large tracts of wetland.

The Project Area was covered by Illinoisan glaciation more than 75,000 years ago, and by Wisconsin glaciation approximately 15,000 to 20,000 years ago. Soils generally consist of clays formed in glacial drift. Surface drift in Lorain County consists of three predominant till deposits: Hiram till, Mogadore till, and an unnamed till of the Killbuck lobe (Ernst and Musgrave 1976). The underlying bedrock of the Project Area is primarily comprised of shale and sandstone of the Olentangy and Ohio Formation of the Devoniam System (ODNR 2006).

The Project Area is located within the Black-Rocky watershed. The area is drained by several intermittent streams and ditches as well as French Creek. French Creek runs west for a short distance where it drains into the Black River. The Black River runs northwesterly until it empties into Lake Erie at Lorain. In addition to crossing various streams and ditches, significant waterbodies crossed by the Project Area include French Creek and the East Branch of the Black River (USGS 2014).

2.2 CLIMATE

At the beginning of the Holocene period, much of the Midwest was dominated in summer by cool/dry air masses from Canada; however, as the Laurentide ice sheet began to retreat during the early Holocene, strong Pacific and Gulf air masses became increasingly dominant during the summer months. The warmth and dryness brought on by the Pacific and Gulf air masses reached a maximum at about 7200 B.P., after which came a period of small floods, likely brought about by convectional thunderstorms. This period, which ended around 6000 B.P., ushered in a period of larger floods and general cooling (Knox 1983). The vegetation "may be related directly to climatic controls such as storms and floods rather than indirectly to broad-scale [Holocene] changes in vegetative cover" (Knox 1983:33). After the complete retreat of the Laurentide ice sheet, the large differences in summer temperatures from Canada to the Gulf Coast no longer existed. Temperatures in the late Holocene favored those of the present-day regional and seasonal variations from moderately warm in summer to reasonably cold in the winter as both the

Canadian and Gulf air masses were allowed to penetrate deep within the region (Knox 1983).

Today, warm, humid summers and cold, dry winters characterize the mid-continental climate of the Project Area, greatly influenced by its location off of Lake Erie. Average winter temperature in Lorain County within the Project Area is 29° Fahrenheit (F), with a winter average daily minimum temperature of 21° F. The summer average temperature is 71° F, with an average daily maximum temperature of 83° F. Total annual precipitation is an average of 35 inches per year, with 64 percent of the precipitation falling between March and September. Average annual snowfall is approximately 43 inches (Ernst and Musgrave 1976).

2.3 SOILS

General soil series encountered within the Project Area are listed below in Table 1 (Ernst and Musgrave 1976; USDA-NRCS 2014). Detailed descriptions of soils encountered during subsurface excavations are discussed in the relevant sections below in Section 6.

TABLE 1. SOIL SERIES ENCOUNTERED WITHIN THE PROJECT AREA

Soil Series	Description
Mahoning	Very deep somewhat poorly drained soils formed in low-lime till on till plains of Wisconsin age. The till is derived primarily from shale and siltstone, with minor amounts of limestone and crystalline erratics. Slope is primarily 0 to 6 percent, but ranges to 15 percent.
Udorthents	Moderately well drained to excessively drained soils that have been disturbed by filling, and areas that are disturbed or covered by development. Slopes range from 0 to 10 percent but are dominantly 0 to 5 percent.
Orrville	Very deep, somewhat poorly drained soils formed in loamy alluvium and are on flood plain steps on flood plains. They formed in alluvium from upland areas of low-lime drift, and from areas of sandstone, siltstone, shale, and limestone. They are in or bordering areas of Wisconsinan or Illinoian glaciation. Slope ranges from 0 to 3 percent.
Miner	Very deep, very poorly drained soils formed in low-lime glacial till principally derived from acid shale on lake plains which have been modified by lake action, and in shallow depressions and narrow drainageways on till plains. They formed in till principally derived from acid shale. The slope gradient ranges from 0 to 2 percent.
Lorain	Very deep, very poorly drained soils that formed in Wisconsin age fine-textured glaciolacustrine sediments. These soils formed in Wisconsin age glaciolacustrine sediments in depressions on lake plains, terraces, and till

Soil Series	Description
	plains. Slope ranges from 0 to 2 percent.
Fitchville	Very deep, somewhat poorly drained soils formed in stratified Wisconsinan age glaciolacustrine sediments that are derived mainly from materials high in sandstone and shale and are on summits and shoulders on lake plains and are on treads on terraces. Slope ranges from 0 to 12 percent.
Mermill	Very deep, very poorly drained soils on lake plains, and less commonly on till plains of late Wisconsinan age. They have a plane or concave surface with a slope gradient of 0 to 2 percent.
Oshtemo	Very deep, well drained soils formed in stratified loamy and sandy deposits on outwash plains, valley trains, moraines, and beach ridges. These soils formed in stratified loamy and sandy deposits that have a high content of quartz and contain variable amounts of material derived from igneous and metamorphic rocks, sandstone, limestone, and dolomite. Slope ranges from 0 to 55 percent.
Holly	Very deep, very poorly and poorly drained soils formed on broad flat areas and in slight depressions on flood plains receiving alluvium from upland areas of low-lime drift and noncalcareous sandstone and shale. Slope ranges from 0 through 3 percent.
Chili	Very deep, well drained soils on outwash plains, terraces, kames, and beach ridges. The soils formed in Wisconsinan age stratified outwash derived largely from noncalcareous sandstone and shale that contains a high amount of quartz gravel. Commonly, the outwash is mantled with silt. The slope gradient typically is 0 to 18 percent, but the range is up to 70 percent.
Haskins	Very deep, somewhat poorly drained soils that are moderately deep or deep to dense till on lake plains and on till plains of late Wisconsinan age. They formed in loamy water-sorted or glaciolacustrine material and in the underlying till. These soils are on lake plains and till plains. Slope ranges from 0 to 6 percent.
Lobdell	Very deep, moderately well drained soils that formed in recent loamy alluvium. These soils are on nearly level flood plains receiving loamy alluvium from upland areas of sandstone, shale, and low lime glacial drift. Slope ranges from 0 to 3 percent.
Mentor	Very deep, well drained soils formed in silty lacustrine material. These soils are on threads and risers on terraces, dissected lake plains, and silty outwash plains. These soils are formed in stratified glaciolacustrine or terrace deposits derived from materials high in

Soil Series	Description
	sandstone and shale. Slope ranges from 0 to 70 percent.
Luray	Very deep, very poorly drained soils formed in silty lacustrine material or slack water sediments. These soils are on slight depressions or on level areas on lake plains, terraces, outwash plains, and in small local areas on till plains. Slope ranges from 0 to 2 percent.
Sebring	Very deep, poorly drained soils formed in stratified Wisconsinan age glaciolacustrine sediments and are on broad flats and depressions on lake plains and slackwater terraces. Slope ranges from 0 to 2 percent.
Trumbull	Deep, poorly drained soils formed in low-lime glacial till. These soils are on level to gently sloping and depressional portions of till plains. Slopes are dominantly less than 4 percent but range to 6 percent.
Rawson	Very deep, moderately well drained soils that formed in loamy sediments and till on till plains, outwash plains and lake plains of Wisconsinan age. They are moderately deep or deep to dense till. Slope ranges from 0 to 12 percent.
Bogart	Very deep, moderately well drained soils that formed in Wisconsinan age stratified outwash deposits and are on convex slopes in areas of low relief on stream terraces, beach ridges, and outwash plains. Slopes range from 0 to 12 percent.
Tioga	Very deep, well drained soils formed in alluvium on higher positions in flood plains. These soils formed in recent alluvium, mainly from areas of sandstone, siltstone, and shale. Slope ranges from 0 to 3 percent.
Ellsworth	Very deep, moderately well drained soils formed in low-lime till on plains of Wisconsin age typically with a with a calcium carbonate equivalent of between 5 and 15 percent. The till is derived from shale and sandstone, with minor amounts of limestone and crystalline rocks. Slope ranges from 0 to 70 percent.
Allis	Moderately deep, poorly drained soils on bedrock controlled uplands. They are less frequently located on lake plains. They are on till plains and, less frequently, lake plains. The soils are formed in a thin mantle of glacial till dominated by, and underlain by, acid shale which, in some places is interbedded with siltstone and sandstone. Slope is 0 to 2 percent.
Jimtown	Very deep, somewhat poorly drained soils formed in Wisconsinan Age stratified outwash deposits on stream terraces, outwash terraces, outwash plains, and beach ridges. Slope ranges from 0 to 6 percent.

2.4 FLORA AND FAUNA

Following the initial retreat of the Laurentide Ice Sheet, the Late Glacial period (14,000-10,000 B.P.) exhibited warm and dry conditions allowing for spruce parkland and mixed parkland communities to thrive, representing a mosaic of diverse plant communities (Grimm and Jacobson 2004). Environmentally sensitive species of voles and lemmings as well as large mammals and megafauna existed together in the Late Glacial period (Custer 1985). A mix of woodland musk-ox, mammoth, mastodon, giant moose, woodland peccaries, white-tailed deer, caribou, elk, and giant beaver, among other species, would have dominated the landscape and been prime game resources. Later period megafaunal extinctions would have forced native peoples to intensify the procurement of animals of smaller sizes, but lessening the need to travel greater distances to exploit these resources. Transition zones of grassland and woodland would have been the focus of the greatest variety of these types of species. However, low order streams, bogs, ponds, and swamps would also have been high potential game resource areas (Anderson 2001; Custer 1985).

The Pre-boreal/Boreal period (10,000-8,000 B.P.) saw a reduction of open grassland and a spread of boreal forests with spruce and pine as the dominant species, although some oak forests would have existed at this time. The spread of coniferous forest would have dramatically lowered the opportunities for megafauna and other large fauna to thrive. As a result, poorly drained swampy areas and other waterbodies would have been the focus of game animals such as deer, moose, and elk (Anderson 2001). The warming trend of the Atlantic climatic period (8,000-5,000 B.P.) was characterized by greater precipitation and an expansion of mesic forests, starting with hemlock and followed by oak, which became the dominant species by approximately 5,000 B.P. (Grimm and Jacobson 2004). During this time, fauna would have relatively mirrored that of the present day, with deer and turkey as major game animals; however, locally available plant species that were later domesticated may have begun to be intensively collected at this time (Anderson 2001; Custer 1985).

Dramatic changes in flora and fauna was experienced during the Sub-boreal climatic period (5,000-3,000 B.P.) as moisture increased and temperature slowly decreased. These changes were evidenced by an increase in nut bearing trees such as hickory and an expansion of grasslands (Grimm and Jacobson 2004). These types of changes would have favored species such as deer and gaming birds, such as turkey. Hydrologic fluctuations due to the increase in moisture and precipitation would have also affected riverine and estuarine systems and, therefore, the species in them. Species with limited tolerance to temperature and salinity fluctuations, such as oysters and anadromous fish, would have been affected (Anderson 2001; Custer 1985).

The climate of the sub-Atlantic period (3,000 B.P. to Present) saw an increase in moisture and cooler temperatures and led to a relative approximation of modern conditions. Flora would have represented vast forests of largely white pine with smaller amounts off basswood and yellow birch. Roots, tubers, berries, and nuts would have supported white-

tailed deer, black bear, turkey, cottontail, beaver, raccoon, elk, woodchuck, gray squirrel, ruffed grouse, and migratory water fowl, which would have been important species to the Project Area's native populations. This area also supports several species of reptiles, amphibians, and native fish populations, which would have equally been important to diversified animal resource procurement. Previously collected plant species, now heavily domesticated during this period, would have functioned as primary plant resources for native populations (Anderson 2001; Custer 1985).

3.0 CULTURAL HISTORY OVERVIEW

3.1 PREHISTORIC PERIOD

The sequence of precontact cultural traditions is divided into generalized periods based on material culture (e.g., projectile-point types, ceramic types) and subsistence adaptations (e.g., hunting and gathering, horticulture, and agriculture). Other sources of information, including oral traditions and language studies, have also been used to "type" cultural traditions. The generalized periods presented here are Paleoindian, Archaic, and Woodland.

3.1.1 Paleoindian Period

The Paleoindian period (ca. 15,000-9,000 B.P.) is traditionally considered the earliest period of human occupation in Ohio. Prior to 15,000 B.P., Ohio was largely covered by the Wisconsin glacier. As the ice receded and Pleistocene megafauna moved into Ohio, so did Paleoindians. The Paleoindians were organized in small nomadic hunting and gathering bands, and brought with them the technology and skill necessary to exploit the local resources (Blank 1982). Archaeological remains suggest that seasonal rounds were followed, exploiting hill, bluff, and terrace locations, and, very rarely, caves as campsites.

The Early Paleoindian period tool kit includes fluted points such as Clovis and Cumberland types. Archaeologically, fluted points are concentrated along the Ohio, Scioto, and Miami Rivers and in Coshocton County, where Upper Mercer chert could be quarried (Seeman and Prufer 1982). The Late Paleoindian or Plano period tool kit included unfluted lanceolate projectile points of the parallel-flake tradition, and stemmed lanceolates such as Scottsbluff-Eden types (Prufer and Baby 1963). The Plano period shows transition between the Early Paleoindian period and the Archaic period, retaining much of the tool kit of the former, but shifting to the subsistence patterns of the latter, as Pleistocene megafauna became unavailable (Mason 1962, Prufer and Baby 1963). Archaeological remains of the Plano period are concentrated in northwestern Ohio.

3.1.2 Archaic Period

The Archaic period in Ohio (ca. 10,000-2,500 B.P.) shows a continuation of Paleoindian lifeways, modified to accommodate the disappearance of Pleistocene megafauna. A wide variety of small fauna were exploited within a more restricted seasonal round. Archaic tool kits differ significantly from Paleoindian tool kits. Projectile points of stemmed, corner-notched, and bifurcate base forms prevail (Prufer and Long 1983).

The Early Archaic (10,000-8,000 B.P.) tool kit shows a continued emphasis on hide working and hunting. New to the tool kit are heavy wood-working and groundstone tools, which did not become common until later in the Archaic. Dalton, Kirk/Thebes, and

Bifurcate projectile point types are common (Shane 1967; Broyles 1970). Most Kirk component sites in Ohio occur in riverine settings (Blank 1970).

Wood-working tools, groundstone tools, and atlatl weights become more prevalent in the Middle Archaic (8,000-5,500 B.P.) tool kit (Fiedel 1987). Middle Archaic sites also show an apparent increase in fishing, as suggested by net sinkers (Fowler 1959; Funk 1978; Griffin 1983). The prevalent projectile point types of the Middle Archaic in Ohio are Eva, Morrow Mountain, Big Sandy, Kanawha, and Stanley stemmed (Justice 1987).

Regional diversity flourishes in the Late Archaic (5,500-3,000 B.P.) archaeological record (Funk 1983; Griffin 1983; Feidel 1987). Populations grew during the Late Archaic, as regional cultures adapted to local conditions. One such local adaptation is the Laurentian Tradition, first defined in the St. Lawrence Valley of New York. The Laurentian Tradition is characterized by broad-bladed notched projectile points, biface knives, and end scrapers (Tuck 1977). In Ohio, Brewerton and Vosburg projectile points are common to Laurentian sites (Shane 1967; Justice 1987). Modern climate, environment, flora, and fauna were established in Ohio by ca. 3,000B.P. (Blank 1970; Funk 1978).

Archaeological remains of Archaic settlements suggest repeated seasonal use, and include more specialized activity sites and rockshelters than evident during the Paleo-Indian period. During the Late Archaic, semi-permanent settlements with large populations appear in the archaeological record. Exotic grave goods recovered from human burials suggest that long-distance trade networks were available (Blank 1982).

3.1.3 Woodland Period

The transition from the Archaic to the Woodland period in Ohio is evidenced archaeologically by broad spear points, including Perkiomen, Lehigh, and Ashtabula types (Shane 1967; Justice 1987). The Woodland period (ca. 3,000 B.P.-AD 1600) is distinguished archaeologically by continuously occupied habitation sites, horticulture, agriculture, and grit-tempered cord-marked ceramics. Burial practices are more elaborate than during the Archaic period.

The Early Woodland or Adena Phase (ca. 3,000-2,100 B.P.) is characterized by elaborate mortuary practices and circular earthworks. The Adena Phase is believed to have developed in the Ohio River Valley and spread to Indiana, Kentucky, and West Virginia. Blocked end tubular pipes, gorgets, Adena projectile points, copper items, and ceramics are among items typically recovered from Adena Phase sites. Adena people subsisted by hunting, plant collecting, fishing, and cultivating squash and corn (Blank 1982). The number and distribution of Adena mounds suggest that small social groups exploited small local territories (Seeman 1984).

The Middle Woodland, or Hopewellian Phase (ca. 2,100 B.P. to AD 600), had a wide-spread influence, centered in the Sciota River Valley in southern Ohio, Indiana, and Illinois. The Hopewellian Phase is characterized by burial mound clusters, geometric earthworks, exotic artifacts and raw materials, and subsistence based on hunting, fishing, plant collection, and squash, maize, amaranth, and goosefoot cultivation. Grave offerings are more elaborate than in the Adena Phase, and include mica and tortoise shell objects, grizzly bear canines, effigy pipes, woven plant fiber fabrics, and human clay figurines (Fiedel 1987).

The Late Woodland period (AD 600-1600) shows continuation of Hopewellian Phase subsistence strategies, but not of the elaborate mortuary practices. Large nucleated village sites develop as maize agriculture becomes more important, and hunting less important. Archaeological evidence of the Late Woodland period is most frequently found on major floodplains with fertile, well drained soils. The Intrusive Mound people, who inhabited Ohio during the Late Woodland period, were so named by Squire and Davis in the 1840s when they discovered intrusive burials in Adena and Hopewell mounds. Grave offerings with these intrusive burials include large triangular chert blades, and scrapers of chert, deer bone, and shell. Bone and antler barbed harpoons were used for fishing. A cutting tool made of a beaver incisor mounted in an antler handle is characteristic of the Intrusive Mound people. Platform pipes similar to those used by the Hopewell have been found associated with the Intrusive Mound people, suggesting that the two groups could be related (Potter 1968:55-56).

Also occupying central and southern Ohio during the Late Woodland period were the people of the Cole Complex, so named after the Walter S. Cole Site in Delaware County, excavated in 1948 (Potter 1968:56-57). Archaeological evidence suggests that Cole Complex people hunted, collected wild plants, and cultivated some plants. Projectile points associated with this complex vary in size and thickness, but tend to be side notched. Large chipped triangular chert knives and chipped slate disks for skinning are characteristic to the Cole Complex (Potter 1968:57). Cole Complex sites include semi-permanent villages and temporary camp sites. Pottery from this complex is generally large, coiled, cord-marked, and grit-tempered, and is similar to Peters Cordmarked (Potter 1968:59; Prufer 1975:13). It is unclear whether Cole Complex people are related to the Hopewell, who preceded them, or to the Fort Ancient people, who followed them (Potter 1968:61-62). Fort Ancient people occupied southern Ohio, and Erie (Whittlesey) people occupied northern Ohio at the end of the Woodland period, both continuing typical Woodland lifeways (Potter 1968:63-72).

3.2 PROTO-HISTORIC PERIOD

At the end of the Woodland period, populations in Ohio began to decrease. While there is no conclusive evidence of the reason for this general population decline, the transmission of European diseases inland from the East Coast through trade goods and inter-group contact is a likely cause (Griffin 1978). French maps from 1681 show that

Shawnee (believed derived from the Mississippian-influenced Fort Ancient people) villages north of the Ohio had been destroyed, and that residents had relocated to western Tennessee (Callender 1978; Hunter 1978). Early historic records of what Native American groups had legitimate claim to territories in Ohio during the early contact period are not conclusive (Wallace 1969).

3.3 HISTORIC PERIOD

From the 1730s to the 1750s, the Shawnee, Wyandot, and Delaware moved into Ohio. This region was beyond the strongest reach of the Iroquois and served as a refuge for tribes avoiding the Iroquois (Hurt 1996:9-10). At this time, the French and the British were vying for control of the Ohio area. The allegiance of the Native American tribes in the area was sought by both the French and the British, not only for the capital gains to be made in trade with the Indians, but also for the military support the Indians could provide. The British strategy for obtaining Indian support included generous trading practices. The French on the other hand, were viewed by the Indians as greedy in trade, but they were more willing to take up arms alongside the Indians, or even against them if they were displeased. The balance of power, and the allegiance of the Ohio tribes, swung back and forth between the British and French in the early history of Ohio (Hurt 1996).

In 1753, the French claimed all land north of the Ohio River, while the British claimed all land to the south of the Ohio River, leaving no land for Indian claims. The predicament of the Ohio tribes at this time was that the French were willing to have the Indians fight to protect French interests, as were the British, but neither side was willing to join the Indians in the fight for Indian land. Beginning in 1754, and throughout the French and Indian War, the Ohio tribes were allied with the French (Hurt 1996:40). Under the Treaty of 1763, also known as the Treaty of Paris, England was granted the area of Great Lakes from Pennsylvania to the Mississippi River, after Britain's victory over France and Spain formally ending the French and Indian War. Various eastern states, such as Virginia, Connecticut, and Pennsylvania, claimed all or part of Ohio. After the war, the British victors demanded the return of all prisoners, and viewed the Ohio tribes as their subjects. Indian tradition does not require the return of captives, who are often assimilated into the tribe to compensate for tribal members killed in conflict. The Pontiac Rebellion was born of the Ohio tribes' frustration over attempts to negotiate with the British (Hurt 1996:45).

In 1763, Neolin, a Delaware, began teaching that European ways and goods were sinful, and encouraging a return to traditional tribal ways of life (Hurt 1996:46). Pontiac, an Ottawa war chief, combined Neolin's message with military force directed at driving White settlers off of tribal land (Hurt 1996:47). When the Pontiac Rebellion drew to a close in 1766, there was some recognition of tribal land rights by the British, but the tribes were still viewed as British subjects, and very little had changed (Hurt 1996:54).

The Treaty of Fort Stanwix was negotiated by the British with the Iroquois in 1768 for all lands south and east of the Ohio River, ostensibly a permanent boundary between tribal and British lands. The Shawnee refused to acknowledge this treaty, claiming that the Iroquois had no right to negotiate regarding that area (Hurt 1996:56-57). By 1774, the Treaty of Fort Stanwix was violated by settlers moving into Virginia and Kentucky, with bloody results. Shawnee retaliated for the encroachment by murdering settlers along the Ohio River; settlers retaliated for those murders by murdering Shawnee (Hurt 1996:57). The Shawnee were not offered support by the Iroquois, or by neighboring tribes. The Shawnee finally had to accept the Treaty of Fort Stanwix and stop hunting south of the Ohio River, the first cession of land by an Ohio tribe (Hurt 1996:58).

During the Revolutionary War, the Ohio tribes joined the British to maintain trade relations and to be on the winning side. Since the British had defeated the French, the Indians believed they would also defeat the Americans. The Americans, meanwhile, courted peace with the Indians, who did not trust them (Hurt 1996:76). After the Treaty of Paris of 1783, the land north of the Ohio River was a bone of contention between the Americans and the Ohio tribes (Hurt 1996). In 1785, the Treaty at the Mouth of the Great Miami, between the Shawnee and the United States, gave the United States control of the land north of Ohio River. The Ohio land claims of the eastern states were settled by the Ordinance of 1787, creating the Northwest Territory. Connecticut retained a strip of land 120 miles long from Pennsylvania to Sandusky along Lake Erie, called the Western Reserve. In 1796, the State of Connecticut sold the Western Reserve to the Connecticut Land Company, and settlers began coming to the Western Reserve in great numbers in the following decades (WPA 1940).

After "Mad Anthony" Wayne negotiated the Treaty of Greenville in 1795, American and Indian relations changed:

> After Wayne's victory, the Indian policy of the United States changed as Thomas Jefferson had wished from "war to bribery." Thereafter, the government assumed that whenever it wanted more land, the Indian nations would sell it on demand, a perverse form of preemption by whites on Indian lands (Hurt 1996:142).

While the Indians saw this as a permanent boundary, the United States viewed it as temporary (Hurt 1996:142).

From that point on, the little territory left to the Ohio tribes was reduced incrementally. After the constitution of the state of Ohio was approved by the United States Congress on February 19, 1803, white settlement of the state proceeded quickly (Hurt 1996:282). After The War of 1812, the economy boomed and the rate of settlement by whites increased rapidly. In 1815, residents of European descent owned 75% of the land in the state, the Western Reserve also held land (Hurt 1996:344).

The Treaty of Fort Meigs, in 1817, relegated the Wyandots to a reservation in northwestern Ohio (Hurt 1996:1), as were the Delaware in the same year (Hurt 1996:212). In 1832, and again in 1836, this area was reduced in size. The Seneca and the Shawnee were removed from Ohio by 1840, as were the Wyandot in 1843. At that time, only about 700 Wyandot remained in the state, to be relocated in Kansas (Hurt 1996:1-2).

3.3.1 Lorain County

The lands in Ohio currently known as Lorain County were purchased by the Connecticut Land Company in 1795 for about 42 cents per acre. In the first years of the nineteenth century, some of the first European settlers began to arrive from Connecticut and other eastern states. Some traveled overland on muddy roads, and the rest by boat. The first family to settle the county was the Beebes, who came in 1807 as the advance agents of Nathan Perry, Jr., son of Nathan Perry of Cleveland. Shortly after their arrival, Perry built a house a short distance east of Black River, in which he opened a store and began trading with the Native Americans. In April of 1811, William Martin came from Pennsylvania with his family. They were followed in that same year by the Gillmore family from Massachusetts (Nichols 1924).

In 1822, having enough residents, Lorain County, named for the province of Lorraine in France, was formed out of parts of Cuyahoga, Medina, and Huron counties. Up to 1830, little or no settlement was made in the county away from Lake Erie. In 1833, a number of Germans immigrants arrived. Among the family names were: Feber, Baumhart, Friend, Bark, Haulkauer, Hageman, Hahn, Vetter, Harwick and others. Heman Ely first came to the area in the early 1800s. He donated land and money for the construction of the courthouse in Elyria, swaying the legislator's decisions to locate the county seat there (Nichols 1924).

By the mid-nineteenth century, industries such as shipbuilding, steelmaking, and fishing brought people, money and railroads to the area. In 1832, Presbyterian minister John L. Shipherd began planning to establish an institution of higher education in Oberlin, Ohio. The school opened in December 1833 and became known as Oberlin College. It was the first institution of higher education in the United States to admit women and African Americans into the same classes as white men (Ohio Historical Society 2005).

During the twentieth century, Lorain County's population has continued to grow. One of the reasons for this growth was the township's proximity to Cleveland, Ohio, in neighboring Cuyahoga County. Many Cleveland residents moved to the area hoping to escape the high housing costs and congestion of the city. However, many of Carlisle Township's residents commute to Cleveland to work. Between 1990 and 2000, Lorain County's population increased by five percent to a total of 284,664 residents in 2000. Lorain County has remained largely rural, with only seven percent of the county deemed to be urban. Despite the area's rural character, most residents earn their livings by

working in manufacturing, sales, or service positions. Lorain's harbor has remained an important source of industry, sending products across the Great Lakes and around the world. For a brief period, during the late nineteenth and early twentieth centuries, steel was a major industry in Lorain County. By the mid-twentieth century, those operations had disappeared from the county (Ohio Historical Society 2005).

4.0 METHODS

4.1 OBJECTIVES

The primary objectives of the investigation were to determine whether the area to be affected by the proposed Project contains any archaeological resources and if those resources are potentially eligible for listing in the NRHP. All work was conducted in accordance with the OHPO *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011) and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (National Park Service [NPS] 1983).

4.2 AREA OF POTENTIAL EFFECT (APE)

The APE, for the purposes of this investigation, included all areas of proposed construction activities or other potential ground disturbing activities outside of the original APE. However, similar to the original spring 2014 investigation, the Project Area encompassed the APE and an area extending beyond the APE. This additional area on either side of the anticipated ROW was included in the Project Area to allow for flexibility in the event of minor route or workspace adjustments. The adjusted route portion of the Project Area (Addendum I) consists of 194.75 acres (78.81 hectares), which includes a 200-foot corridor centered on the centerline of the Proposed Route, as well as anticipated TWAs outside the 200-foot corridor.

4.3 ARCHAEOLOGICAL SURVEY AREA

A portion of the Project Area (nearly 17 percent) will be located in or along previously disturbed rights-of-way or along existing developed areas. Based on both a desktop and field delineation of wetlands, nearly 30 percent of the Project Area will cross wetlands. Areas considered to have a high potential to contain significant, intact archaeological resources include those in upland (non-wetland) areas near water sources that have not been previously disturbed by the installation and operation of existing utilities or other infrastructure, or by any other form of land development.

Because the majority of the Project Area is located in or along areas that have been previously disturbed and given the prevalence of wetlands, only a portion of the Project Area falls within areas that were assumed to have a high potential to encounter significant, intact archaeological resources. As a result, Phase I archaeological survey was only conducted within the portions of the Project Area that occur within these assumed high potential areas (the "Survey Area") (see Appendix A: Survey Results Maps). The September/October 2014 (Addendum I) Survey Area encompassed approximately 123.72 acres (50.07 hectares). The remaining 71.03 acres (28.74 hectares) of the 194.75-acre (78.81-hectare) adjusted route portion of the Project Area were excluded from survey. Fieldwork was conducted from September 2 to September 6, and

October 28 to October 29, 2014. Andrew Bielakowski and Mark Doperalski served as Principal Investigators.

4.4 ARCHAEOLOGICAL BACKGROUND RESEARCH

On February 26, 2014, staff from ERM conducted background research online using the OHPO's *Online Mapping System* for information regarding previously identified archaeological sites within one mile (1.6 km) of the proposed centerline, as well as archaeological surveys previously conducted within the Project Area. In addition, USGS topographic quadrangles, historical plat maps, aerial photographs, soils data were consulted and reviewed in order to assess the portions of the Project Area that may possess a higher potential for containing previously unidentified archaeological sites.

4.5 ARCHAEOLOGICAL SURVEY METHODS

The Addendum I Phase I archaeological survey work for the Project was conducted during September and October of 2014. Andrew Bielakowski, M.A., RPA and Mark Doperalski, M.A., RPA served as Principal Investigators, and Mark Doperalski, M.A., RPA conducted the fieldwork with Ryan Lisson, B.S. (see Appendix C for a list of Project personnel).

The following survey methodology was implemented to identify archaeological resources within the Survey Area as defined above. All work was conducted in accordance with the OHPO *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011).

4.5.1 Pedestrian Survey

Systematic pedestrian surface reconnaissance was carried out across the entire Survey Area as defined above. Pedestrian reconnaissance was employed to ascertain whether above ground features, such as earthworks, stone features, or abandoned structural foundations, were present within the Survey Area. Pedestrian survey was also employed to identify artifacts in all areas where 50 percent or more of the ground surface was visible. Pedestrian reconnaissance was conducted at 10-meters (m) (33-ft) intervals and was reduced to 1- to 5-m (3- to 16-ft) intervals at locations where artifacts were identified or within the boundaries of previously recorded archaeological sites.

4.5.2 Shovel Testing

At least one shovel test was excavated in each area exhibiting greater than 50 percent surface visibility where artifacts were identified on the surface. Shovel tests were excavated at 15-m (49-ft) intervals in areas exhibiting less than 50 percent ground surface visibility that were not inundated or exhibiting excessive slope. Shovel tests were square excavations, measuring approximately 50 by 50 centimeters (cm). All excavated soil matrices were passed through ¼-inch hardware mesh to ensure the consistent recovery of

artifacts. Tests were excavated in 10 cm arbitrary levels within soil layers to a minimum of 10 cm into the subsoil.

4.5.3 Site Delineation

When archaeological sites were identified during the pedestrian surface reconnaissance survey, an intensive surface examination of the site area was conducted to determine the boundary of the site area as well as record artifact concentrations and feature locations. Shovel tests were be used to establish the soil stratigraphy at the site, determine the vertical limits of the site, and assess if subsurface deposits were likely to exist below the plow zone or initial soil horizon.

When archaeological sites were identified during subsurface survey (i.e., shovel testing) within areas exhibiting less than 50 percent ground surface visibility, additional shovel tests were placed 5 to 10-m (16 to 33-ft) from the original find spot to further delineate the site area; however, testing was confined to within the Survey Area.

4.5.4 Field Documentation

The Survey Area was navigated using a Trimble GeoExplorer XH sub-meter global positioning system ("GPS") unit. All archaeological finds and site boundaries were documented using GPS. Survey data was recorded through standardized forms and the field director's daily log. Recorded information included: shovel test locations and methods of testing; the numbers, types, and locations of recovered archaeological materials; the depth of shovel tests and the thickness of excavated soil layers; soil textures and inclusions (both natural and archaeological); and soil color according to Munsell® color charts.

4.6 LABORATORY METHODS

For the purposes of cataloging and analysis, each provenience from which artifacts were collected was assigned a unique bag number in the field, beginning with bag number "1" at each site. Upon completion of the fieldwork, all artifacts collected during the archaeological investigation were returned to the ERM archaeological laboratory for cleaning, processing, and cataloging. All artifacts identified on public lands will be curated in accordance the OHPO *Archaeological Guidelines* (OHPO 1994 as reprinted in 2011). ERM is currently in the process of setting up a curation agreement with the Ohio Historical Society. In the case of artifacts identified on private lands, a letter will be sent to the appropriate landowner asking if the landowner is willing to donate their artifacts to an OHPO-approved curation facility. If the landowner is unwilling to donate their artifacts to a curation facility, the artifacts will be photographed and fully documented prior to the artifacts being returned to the landowner.

4.7 EVALUATION

Upon completion of the fieldwork and laboratory analyses, the eligibility of the identified sites for listing on the NRHP was assessed based on the site's significance and integrity. The NRHP criteria, summarized below, were used to help assess the significance of the site. While all four criteria are considered, prehistoric archaeological sites are typically eligible for listing on the NRHP under Criterion A or D.

- Criterion A – association with the events that have made a significant contribution to the broad patterns of our history;
- Criterion B – association with the lives of persons significant in our past;
- Criterion C – embodiment of the distinctive characteristics of a type, period, or method of construction; representation of the work of a master; possession of high artistic values; or representation of a significant and distinguishable entity whose components may lack individual distinction
- Criterion D – potential to yield information important to prehistory or history (NPS 1983).

5.0 LITERATURE REVIEW

5.1 PREVIOUS ARCHAEOLOGICAL STUDIES

Previous archaeological resources studies conducted within the Project Area are discussed in the original survey report (Bielakowski and Doperalski 2014). No previous investigations beyond those already discussed have been conducted within the current Project Area, as revised.

5.2 PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

No archaeological sites were previously identified within one mile (1.6 km) of the centerline of the current Project, as revised, that were not already discussed in the original survey report (Bielakowski and Doperalski 2014).

6.0 ARCHAEOLOGICAL SURVEY RESULTS AND RECOMMENDATIONS

6.1 INTRODUCTION

The current (Addendum I) archaeological survey for the Project was conducted from September 2 to September 6, and October 28 to October 29, 2014. Andrew Bielakowski, M.A., RPA and Mark Doperalski, M.A., RPA served as the Principal Investigators for the Project (see Appendix C for a list of Project personnel).

6.2 SURVEY COVERAGE

The 123.72-acre (50.07-hectare) Addendum I Survey Area consisted almost exclusively of agricultural lands complimented with a small extent of wooded flatlands and manicured residential yards. Nearly all of the agricultural lands that occur within the current Survey Area consisted of actively cultivated fields exhibiting 30 to 50 percent surface visibility due to maturing crops. A small extent of the low-lying agricultural lands had been allowed to grow over in wetland vegetation. The small extent of wooded flatlands that occur within the current Survey Area often exhibited standing water or saturated soils. Pedestrian survey was completed for 122.43 acres (49.55 hectares) and pedestrian survey with shovel testing was completed for 1.29 acres (0.52 hectares). The survey included excavation of 23 shovel tests in one area that was assessed as warranting subsurface investigation.

6.3 SURVEY RESULTS

During the Phase I archaeological survey, ERM identified one newly recorded archaeological site (33LN0284) within the Addendum I Survey Area (Figure 2; Appendix A: Map 12). The site consists of a U-plan limestone-block foundation, two dilapidated wooden outbuildings, a brick-lined well shaft, and an artifact scatter comprised of historic-period artifacts and a single prehistoric-period lithic tool. The site components were identified between two extant dwellings, a gable-el at 39385 Sugar Ridge Road and a foursquare at 39325 Sugar Ridge Road. Based on the results of the current investigation, 33LN0284 is recommended not eligible for listing in the NRHP. This newly recorded archaeological site is described in detail below within Section 6.3.1.

One additional find spot, AV212-1, was identified during the Phase I archaeological survey. AV212-1 is a secondary dump deposit consisting of several piles of discarded concrete slab fragments and limestone block located within the forest just beyond the edge of a cultivated field. The location of this find spot was noted for due diligence and is depicted on Figure 2 and Appendix A: Map 18; however, it was not recorded as an official archaeological site due to the apparent recent and secondary nature of the deposit.

[redacted]

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey Results

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Newly Identified Archaeological Site
- Find Spot
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Lake
- Railroad

Roads

- Interstate
- US Highway
- State Highway

N

W E

S

1:122,000

0 0.45 0.9 1.8 2.7 3.6 Miles



Date: 12/15/2014	Figure: 2
Drawn by: JPS	

6.3.1 Site 33LN0284

Site 33LN0284 consists of a U-plan limestone-block foundation, two dilapidated wooden outbuildings, a brick-lined well shaft, and an artifact scatter comprised of historic-period artifacts and a single prehistoric-period lithic tool. The site components were identified between two extant dwellings, a gable-el at 39385 Sugar Ridge Road and a foursquare at 39325 Sugar Ridge Road.

At the time of survey, the area exhibited a mix of deciduous woodland vegetation and manicured grasses providing little to no surface visibility. Pedestrian survey was conducted at 10-m intervals across this portion of the Project Area, which led to the discovery of several historic-period features in addition to the extant, abandoned house.

Due to the poor surface visibility 18 shovel tests set at 10-m intervals were excavated to determine if this portion of the Project Area contained subsurface deposits. One shovel test contained a single prehistoric-period artifact, six shovel tests contained historic-period artifacts, and three shovel tests encountered a thick gravel deposit as they were situated on an overgrown gravel driveway. Five additional shovel tests at 5-m intervals were excavated around the single prehistoric find spot to determine the extent of the prehistoric-period component within the site. Two shovel tests at 5-m intervals were excavated in all four cardinal directions from the prehistoric-period find spot. No additional prehistoric-period resources were identified. The contents of the positive shovel tests are further explored below in Table 2 (see Appendix B for full artifact catalog). It should be noted that the mortar fragments observed in shovel tests 5 and 18 were not collected.

TABLE 2. POSITIVE SHOVEL TESTS AT 33LN0284

Shovel Test No.	Artifact Class	Artifact Type	Artifact Depth	Material
ST 1	Ceramic; Stoneware	Base Fragment	20-30 cmbs	Stoneware; Gray Salt Glaze Exterior and Albany Slip Interior
ST 5	Mortar	Fragment	20-30 cmbs	Mortar
ST 9	Metal; Ferrous Alloy	Wire Nail	0-10 cmbs	Ferrous Alloy
	Metal; Ferrous Alloy	Wire Nail	0-10 cmbs	Ferrous Alloy
	Metal; Ferrous Alloy	Wire	0-10 cmbs	Ferrous Alloy
ST 14	Metal; Ferrous Alloy	Bolt	0-10 cmbs	Ferrous Alloy
	Metal; Ferrous Alloy	Nail	0-10 cmbs	Ferrous Alloy
	Metal; Ferrous Alloy	Nail	0-10 cmbs	Ferrous Alloy
ST 17	Lithic; Chipped Stone	Biface	20-25 cmbs	Indeterminate Chert
ST 18	Glass; Curved	Body Fragment	10-20 cmbs	Glass-Clear
	Mortar	Fragment	10-20 cmbs	Mortar
ST 19	Glass; Curved	Shattered	0-10 cmbs	Glass-Aqua

A total of 23 shovel tests were excavated at the site. The soils were moderately well developed revealing two layers, and were excavated to an average depth of 36 cmbs. The initial layer consisted of silt clay to clay soil containing gravel and ranged in color from very dark grayish brown (10YR3/2) to brown (10YR4/3). The initial layer extended to depths ranging from 22 to 45 cmbs overlying a second layer consisting of dark yellowish brown (10YR4/6) to light brownish gray (10YR6/2) sandy clay with gravel.



FIGURE 3. EXAMPLE OF SOIL STRATIGRAPHY AT SITE 33LN0284; FACING NORTH

A boundary was drawn to encompass the limestone-block foundation, the two dilapidated wooden structures, and the brick-lined well shaft identified between two extant dwellings, a gable-el at 39385 Sugar Ridge Road and a foursquare at 39325 Sugar Ridge Road. This boundary also encompassed the portion of the sparse artifact scatter identified within the Project Area (see Figure 4). The 1.24-acre area was designated Site 33LN0284. It should be noted that the artifact scatter likely extends further west beyond the Project Area toward the gable-el dwelling at 39385 Sugar Ridge Road.

nrg

The power to change life

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey Site Map: 33LN0284

Legend

- Above Ground Proposed Project Route
- Below Ground Proposed Project Route
- Negative Shovel Test
- Positive Shovel Test - Historic
- Positive Shovel Test - Prehistoric
- Workspace
- Building Feature
- Gravel Drive Feature
- Archaeological APE
- Newly Identified Archaeological Site
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Survey Area
- Well Feature
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DRAFT

N
W E
S

1:1,200

0 50 100 Feet



Date: 11/14/2014	Figure:4
Drawn by: JPS	

Site Features and Artifacts

As stated above, the site consists of a U-plan limestone-block foundation (Feature 1), two dilapidated wooden outbuildings (Features 2 and 3), a brick-lined well shaft (Feature 4), and an artifact scatter comprised of historic-period artifacts and a single prehistoric-period lithic tool (see Figure 4).

Feature 1 is a U-plan limestone-block foundation opening to the south with the north wall built into a slight earthen rise (see Figures 4 and 5). The feature measures 40 feet west to east by 31 feet north to south. The north wall, the tallest of the three walls, measures approximately 5 foot 7 inches tall with the west and east walls tapering off to the south corresponding to the slope of the surrounding land. The foundation walls measure approximately 16 inches in width. Modern debris has been discarded within and adjacent to the foundation feature. A poured-concrete floor was observed within the rectangular feature beneath several inches of leaf litter, vegetation, and modern debris.



FIGURE 5. FEATURE 1 AT SITE 33LN0284; FACING NORTHWEST

Feature 2 is a dilapidated wood-frame shed exhibiting post and beam construction with hand-hewn beams and wooden spikes (see Figures 4, 6, 7, 8, 9, and 10). The outbuilding measures 21 feet north to south by 16 feet west to east. The wooden frame rests on several large rocks placed at the corners of the foundation. The structure shows evidence that it has been repaired over the years, but has now fallen into disrepair and is partially collapsed. Fragments of concrete noted below abundant amounts of leaf litter suggest the outbuilding once exhibited a pour-concrete floor. The walls and roof are constructed of planks with the south wall and roof exhibiting sheet metal overlay. The roof is sloped toward the west with the east side of the shed at 144 inches high and the west side at 114 inches. Notches in the main beam along the southern floor suggest smaller beams once ran north from this primary beam carrying an elevated wooden floor (see Figure 10).



FIGURE 6. FEATURE 2 AT SITE 33LN0284; FACING SOUTHEAST



FIGURE 7. FEATURE 2 AT SITE 33LN0284; FACING NORTHEAST



FIGURE 8. FEATURE 2 AT SITE 33LN0284; FACING SOUTHEAST



FIGURE 9. FEATURE 2 AT SITE 33LN0284; FACING NORHTEAST



FIGURE 10. FEATURE 2 AT SITE 33LN0284; FACING EAST

Feature 3 is a dilapidated wood-frame shed that appears to have been last used as a chicken coup (see Figures 4 and 11). The outbuilding measures 16 feet north to south by 12 feet west to east. The wooden frame rests on a poured concrete slab. The structure shows evidence that it has been repaired over the years, but has now fallen into disrepair. The walls and roof are constructed of planks with the roof exhibiting sheet metal overlay. The construction techniques are more modern than those employed for Feature 2 and the shed appears to have been pieced together and/or repaired re-using scraps of wood from other structures. The roof is sloped toward the west with the east side of the shed at 93 inches high and the west side at 58 inches.



FIGURE 11. FEATURE 3 AT SITE 33LN0284; FACING SOUTHWEST

Feature 4 consists of a brick-lined well shaft located immediately north of Feature 2 (see Figures 4, 12, and 13). The 32 inch diameter well shaft lies below a large in ground concrete slab exhibiting a 12 inch by 16 inch rectangular opening allowing access to the well below (see Figure 13). At the time of survey the rectangular opening was covered with a thin 1/16 of an inch steel plate partially obscured by leaf litter. Observed within the well was a metal well pump with plumbing extending into the west side of the well shaft (see Figure 13).



FIGURE 12. FEATURE 4 AT SITE 33LN0284; FACING NORTHEAST



FIGURE 13. FEATURE 4 AT SITE 33LN0284; FACING NORTHWEST

The *artifact scatter* consists of a sparse subsurface deposit of historic-period items and a single prehistoric-period lithic tool. The single prehistoric-period artifact, a biface crafted from an indeterminate chert material was identified at 20 to 25 cmbs within Shovel Test 17 (see Figures 4 and 14). Two shovel tests at 5-m intervals were excavated in all four cardinal directions from the prehistoric-period find spot; however, no additional prehistoric-period artifacts were observed.

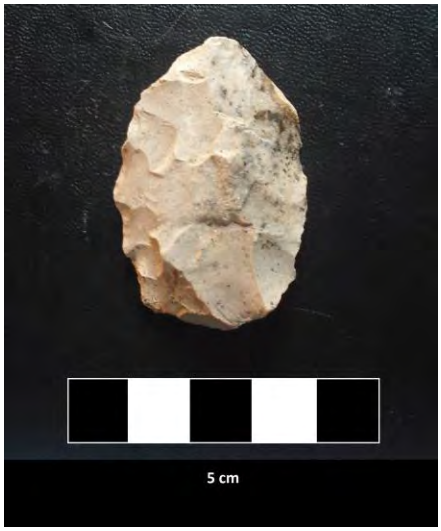


FIGURE 14. LITHIC BIFACE IDENTIFIED AT 33LN0284

The historic-period artifact assemblage is comprised of mortar fragments, four nails, one wire fragment, one bolt, two sherds of curved glass, and one stoneware fragment exhibiting a gray salt glaze exterior and an Albany slip interior. Many of the historic-period artifacts identified at the site were not diagnostic of a specific time period beyond the historic-period in general. However, the Albany slip is indicative of the late nineteenth century to mid-twentieth century (Stelle 2001).

The subsurface historic-period artifact scatter was found to extend eastward up to and adjacent to the extant, foursquare dwelling (and its associated patio and well) located at 39325 Sugar Ridge Road (see Figure 4). It should be noted that the artifact scatter also likely extends west beyond the Project Area toward the gable-el dwelling located at 39385 Sugar Ridge Road, however, testing was restricted to within the Project Area.

Historical Document Research

On November 7, 2014, staff from ERM conducted records research at the Lorain County Administration Building and Records Center to evaluate the historical-period resources at Site 33LN0284. Jessica R. Wobig, M.A. and Kim Barnard, M.A., who meet the Secretary of the Interior's Qualifications for Architectural History, completed historic tax map, tax duplicate, and deed searches for the property. Local history collections from the Lorain County Public Library, as well as digital resources provided by the Cleveland Public Library and Ohio History Connection (formerly the Ohio Historical Society), provided

additional context to ensure adequate coverage of relevant topics. ERM staff evaluated available primary resources and photographs depicting the present condition of the site's architectural structures and ruins.

The site area falls within what was historically known as lot number 48 in Ridgeville Township (now known as North Ridgeville). Lot 48 was originally deeded to early Western Reserve landowners, Roderick Norton, Lyman Brown, and Sanford Brown. Tax records at the Lorain County Records Center indicate that in 1824, the property was transferred to Jozeb Stocking. In 1833, Stocking allotted 43 acres of the northwestern portion from the original 293 acres lot to Amos Batte. By 1837, Batte had transferred ownership to Octavius Von Wormen (Wasmer). Von Wormen constructed a dwelling due west of the Project Area, which is no longer extent.[3] The Von Wormen family is noted as being the first residents of Sugar Ridge, settling northeast of the Project Area by the 1820s; however, 33LN0284 is not the site of the Von Wormen homestead, which is located northeast of the Project Area.

Based on the available property history, the approximate age for the shed roof outbuilding with post and beam construction dates to circa late 1830s-1840s; however, the integrity and addition of modern materials indicates the structure may have been reconstructed in the early 20th century. The hand hewn beams of the shed roof outbuilding and the limestone-block foundation of the larger U-plan foundation are indicative of mid-19th century. The U-plan limestone foundation (Feature 1) is likely the ruins of a barn and correlates with the mid-19th century agricultural development of the area. The 1874 Lorain County Atlas indicates the site area was in the ownership of J. Smith and no structures are depicted, though structures are depicted in other areas of the map (D. J. Lake and Company 1874). This suggests that there were no residential structures at the site location in 1874, which further confirms that the limestone-block foundation at the site belonged to that of a barn or other out building. By the late 1880s, the land was used primarily for agricultural purposes. During this time, the gable-el dwelling (39385 Sugar Ridge Road), located to the west of the ruins identified at 33LN0284, replaced the original dwelling found on the far northwestern portion of historical lot 48. The 1896 Lorain County Atlas shows the site area in the ownership of N. J. Van Wormer and depicts structures to the east, west, and north of the site area, but lacks depictions of structures within the site area (American Atlas Company 1896). The 1896 atlas also indicates that a sawmill formerly stood to the west of Site 33LN0284. A sawmill was not rare or unusual for the area, as Sugar Ridge Road was named for the sugar maples that were logged in preparation for agricultural use.

The 1901 USGS map of the area depicts a structure corresponding to the location of the gable-el dwelling at 39385 Sugar Ridge Road, but no structures are depicted within the site area. In the early 20th century, historical lot 48 was parceled out, and the 1910s foursquare dwelling (39325 Sugar Ridge Road), located to the east of the ruins identified

[3] The tax records reflect a property value increase during 1832 and 1841 and the 1874 and 1896 Lorain County Atlas records a substantial building.

at 33LN0284, was constructed. The current 2003 USGS map depicts an outbuilding at the location the site features were identified. At the time of survey, the gable-el dwelling remained occupied, while the foursquare was vacant. Both dwellings are in fair to poor condition with the gable-el having experienced the most alteration and loss of integrity. Neither dwelling appears to be eligible for listing on the NRHP.

Site Eligibility Status and Recommendations

Site 33LN0284 consists of U-plan limestone-block foundation, two dilapidated wooden outbuildings, a brick-lined well shaft, and a sparse artifact scatter comprised of historic-period items and a single prehistoric stone tool.

The prehistoric-period and historic-period components identified at Site 33LN0284 do not appear to be associated with one another. It is likely that the single prehistoric-period lithic artifact was deposited in the area prior to the onset of European-American settlement. For that reason, the prehistoric-period artifact is not considered to be connected or related to the historic-period deposit. As a result, the two individual components of this multi-component site have been addressed separately with regard to historical significance and NRHP eligibility.

The prehistoric-period deposit component at Site 33LN0284 consists of one lithic bifacial tool crafted of an indeterminate chert material. The isolated lithic tool appears to represent an isolated discard event during the prehistoric-period. No additional archaeological prehistoric-period resources were identified at the site. The potential for the prehistoric-period component to yield further information important in history has been exhausted. ERM recommends prehistoric-period component at 33LN0284 not eligible for listing in the NRHP as the prehistoric-period component is unlikely to provide additional information important to history and therefore cannot satisfy NRHP Criterion D. No further archaeological investigation of the prehistoric-period component at 33LN0284 is recommended.

The observed historic-period deposit consists of structural ruins, a well shaft feature, and a sparse artifact scatter. The location of the 33LN0284 does not appear to have been the primary residence of any persons of local, state, or national importance and as such it is unlikely that the historic-period component at 33LN0284 is eligible for listing in the NRHP under Criterion B. The site does not appear to be associated with an event of local or national importance and does not exhibit architecturally remarkable or unique structures demonstrating the work of a master. For those reasons the historic-period component at the site is recommended not eligible for listing in the NRHP under Criteria A and C. It is unlikely that the structural ruins, well shaft feature, and sparse historical-period artifact scatter could provide important information regarding the European settlement and agricultural development of Lorain County not already gleaned from better preserved sites and historical documents. Therefore, the historic-period component at 33LN0284 is recommended not eligible for listing in the NRHP under Criterion D. No further archaeological investigation of the portion of Site 33LN0284 residing within the Project Area is recommended.

7.0 SUMMARY AND RECOMMENDATIONS

During the Phase I archaeological survey, ERM identified one newly recorded archaeological site (33LN0284) within the Addendum I Survey Area (Figure 2; Appendix A: Map 12). The site consists of a U-plan limestone-block foundation, two dilapidated wooden outbuildings, a brick-lined well shaft, and an artifact scatter comprised of historic-period artifacts and a single prehistoric-period lithic tool. The site components were identified between two extant dwellings, a gable-el at 39385 Sugar Ridge Road and a foursquare at 39325 Sugar Ridge Road. Based on the results of the current investigation, 33LN0284 is recommended not eligible for listing in the NRHP.

One additional find spot, AV212-1, was identified during the Phase I archaeological survey. AV212-1 is a secondary dump deposit consisting of several piles of discarded concrete slab fragments and limestone block located within the forest just beyond the edge of a cultivated field. The location of this find spot was noted for due diligence and is depicted on Figure 2 and Appendix A: Map 18; however, it was not recorded as an official archaeological site due to the apparent recent and secondary nature of the deposit.

Based on the results of the Phase I archeological survey, no further archaeological work is recommended prior to construction within the portions of the Project Area surveyed and discussed in this Addendum I report. If the Project uncovers resources that might be of archeological interest within the Project Area during construction, the OHPO should be contacted immediately. If human remains should be encountered during construction activities, all ground disturbing activity must cease and local law enforcement and the OHPO must be notified. Additionally, should the Project Area be adjusted beyond the area that has been surveyed, additional Phase I archaeological survey may be completed in advance of construction, to the extent necessary or appropriate.

8.0 REFERENCES CITED

American Atlas Company
1896 *Lorain County 1896*. American Atlas Company, Chicago, Illinois.

Anderson, David G.
2001 Climate and Culture Change in Prehistoric and Early Historic Eastern North America. In *Archaeology of Eastern North America*, Eastern States Archaeological Federation, 29: 143-186.

Bielakowski, Andrew and Mark Doperalski
2014 *Phase I Archaeological Investigation for the NRG Ohio Pipeline Company's Proposed Pipeline Project, Lorain County, Ohio.* Submitted NRG Ohio Pipeline Company LLC. Environmental Resources Management, Rolling Meadows, Illinois.

Blank, John E.
1970 *The Ohio Archaic: A Study in Culture History*. Unpublished PhD Dissertation, University of Massachusetts, Amherst, Massachusetts.

1982 *Results of a Phase I and II Archaeological Resource Assessment of a Portion of the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Ohio Historic Preservation Office, Columbus, Ohio.

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

Broyles, Betty J.
1970 *Second Preliminary Report: The St. Albans Site, Kanawha County, West Virginia*. Report of Archaeological Investigations No. 3, West Virginia Geological and Economical Survey, Morgantown, West Virginia.

Callender, Charles
1978 Shawnee. In the *Handbook of North American Indians, Northeast*, Vol. 15. Bruce G. Trigger, editor. Smithsonian Institution, Washington, D.C.

Custer, J.F.
1985 Test Excavations at the Webb Site (36CH51), Chester County, Pennsylvania. *Pennsylvania Archaeologist*, Society for Pennsylvania Archaeology, 55(1-2): 21-30.

D.J. Lake & Company
1874 *Lorain County 1874*. D.J. Lake & Company, Philadelphia, Pennsylvania.

Ernst, James E. and Donald K. Musgrave
1976 *Soil Survey of Lorain, Ohio*. United States Department of Agriculture, Soil Conservation Service, in cooperation with Ohio Department of Natural Resources, Division of Lands and Soil, and Ohio Agricultural Research and Development Center, Columbus, Ohio.

Fiedel, Stuart J.
1987 *Prehistory of the Americas.* Cambridge University Press, Cambridge, Massachusetts.

Fowler, Melvin L.
1959 *Summary Report of Modoc Rock Shelter 1952, 1953, 1955, 1956*. Report of Investigations, No. 8, Illinois State Museum, Springfield, Illinois.

Funk, Robert E.
1978 Post-Pleistocene Adaptations. In *Handbook of North American Indians, Northeast,* Vol. 15, Bruce G. Trigger, editor. Smithsonian Institution, Washington, D.C.

1983 The Northeastern United States. In *Ancient North Americans*, Jesse D. Jennings, editor. W. H. Freeman and Company, San Francisco, California.

Griffin, James B.
1978 Late Prehistory of the Ohio Valley. In *Handbook of North American Indians, Northeast,* Vol. 15, Bruce G. Trigger, editor. Smithsonian Institution, Washington, D.C.

1983 The Midlands. In *Ancient North Americans*, Jesse D. Jennings, editor. W. H. Freeman and Company, San Francisco, California.

Grimm, Eric C. and George L. Jacobson, Jr.
2004 Late-Quaternary Vegetation History of the Eastern United States. In *The Quaternary Period in the United States, Volume 1*, edited by A.R. Gillespie, S.C. Porter, and B.F. Atwater, pp. 381-402. Elsevier Science, Philadelphia.

Hunter, William A.
1978 History of the Ohio Valley. In *Handbook of North American Indians, Northeast,* Vol. 15, Bruce G. Trigger, editor. Smithsonian Institution, Washington, D.C.

Hurt, R. Douglas
1996 *The Ohio Frontier: Crucible of the Old Northwest, 1720-1830*. Indiana University Press, Bloomington, Indiana.

Justice, Noel D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States*. Indiana University Press, Bloomington, Indiana.

Knox, James C.
1983 Responses of River Systems to Holocene Climates. In *Late-Quaternary Environments of the United States, Volume 2: The Holocene*, edited by H. E. Wright, Jr., pp. 26-41. University of Minnesota Press, Minneapolis.

Mason, Ronald J.
1962 The Paleo-Indian Tradition in Eastern North America. *Current Anthropology* III(3):231.

National Park Service (NPS)
1983 Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. *Federal Register* 48(190):44716-44740.

Nichols, J.B.
1924 The History of Northern Lorain County (The Reprint Company).

Ohio Department of Natural Resources (ODNR), Division of Geological Survey
2006 *Bedrock Geologic Map of Ohio*. Ohio Department of Natural Resources, Division of Geological Survey Map, Columbus, Ohio.

Ohio Historic Preservation Office (OHPO)
1994 *Archaeology Guidelines*. Ohio Historical Society, Columbus, Ohio.

Ohio Historical Society
2005 Lorain County. Ohio Central: An Online Encyclopedia of Ohio.

Potter, Martha A.
1968 *Ohio's Prehistoric Peoples*. Ohio Historical Society, Columbus, Ohio.

Prufer, Olaf H.
1975 Chesser Cave: A Late Woodland Phase in Southeastern Ohio. In *Studies in Ohio Archaeology*, Revised Edition, Olaf H. Prufer and Douglas H. McKenzie, editos. The Kent State University Press, Kent, Ohio.

Prufer, Olaf H. and Raymond S. Baby
1963 *Indians of Ohio.* Ohio Historical Society, Columbus, Ohio.

Prufer, Olaf H. and Dana A. Long
1983 *The Archaic of Northeastern Ohio*. Kent State Research Papers in Archaeology, No. 6. Kent State University, Kent, Ohio.

Seeman, Mark F.
1984 Adena "Houses" and Their Implications for Early Woodland Settlement Models in the Ohio Valley. In *Early Woodland Archaeology*, Kenneth B. Farnsworth and Thomas E. Emerson, editors, pp. 598-608. Center for American Archaeology Press, Kampsville, Illinois.

Seeman, Mark F. and Olaf H. Prufer
1982 An Updated Distribution of Ohio Fluted Points. In *Midcontinental Journal of Archaeology* 7(2).

Shane, Orrin C., III
1967 The Mixter Site: An Early Woodland Village in Lorain County, Ohio. In *Studies in Ohio Archaeology*, edited by O.H. Prufer and D.H. McKenzie, The Press of Western Reserve University, Cleveland, Ohio.

Stelle, Lenville J.
2001 *An Archaeological Guide to Historic Artifacts of the Upper Sangamon Basin, Central Illinois*. Electronic document. http://virtual.parkland.edu/lstelle1/len/archguide/documents/arcguide.htm. Accessed January 2014.

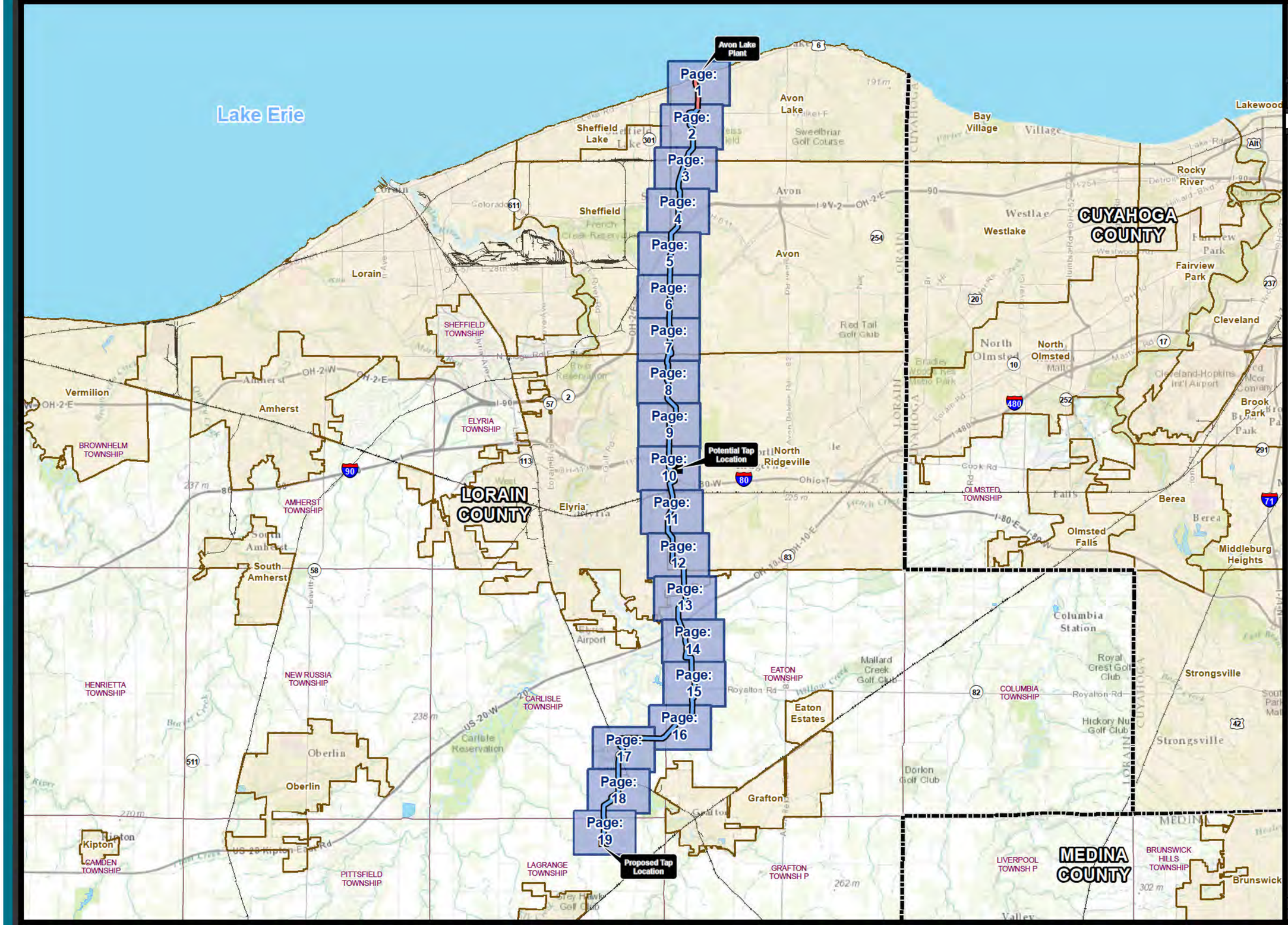
Tuck, James A.
1977 A Look at Laurentian. In *Current Perspectives in Northeastern Archaeology*, Robert E. Funk and Charles F. Hayes, editors. Researches and Transactions of the New York State Archaeological Association 17(1):31-40.

United States Geological Survey (USGS)
2014 Science In Your Watershed. Electronic Document, http://water.usgs.gov/lookup/getwatershed?04110001, accessed June 2014.

Wallace, Anthony F.C.
1969 *The Death and Rebirth of the Seneca.* Vintage Books, New York, New York.

Works Progress Administration
1940 *Ohio Guide*. Oxford University Press, New York.

APPENDIX A: SURVEY RESULTS MAPS



nrg
Power to be free

AVON LAKE GAS ADDITION PROJECT

Appendix A Overview Map

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Map Extent Boundary
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Lake
- Railroad

Roads

- Interstate
- US Highway
- State Highway

1:122,000

0 0.45 0.9 1.8 2.7 3.6 Miles



Date: 12/15/2014

Drawn by: JPS

nrg

Power to be free™

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N

W E

S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Page: 1

Drawn by: JPS

[redacted]

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

[redacted]

nrg

Power to be free™

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N W E S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014 | Page: 3

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 5
Drawn by: JPS	S:\NRG\Avon Lake\GIS\MXD 2014\NGC\Archaeol Report\NRGGas Avon Lake Cultural Report\SiteMapbook.mxd

[redacted]

nrg

Power to be free™

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014 | Page: 6

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N

W E

S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 7
Drawn by: JPS	

nrg

Power to be free™

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N

W E

S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Page: 8

Drawn by: JPS

[redacted]

nrg

Power to be free™

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014 | Page: 9

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N

W E

S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Page: 10

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014 | Page: 12

Drawn by: JPS

[redacted]

nrg
Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014 | Page: 13

Drawn by: JPS

[redacted]

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014 | Page: 14

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N W E S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 15
Drawn by: JPS	S:\NRG\Avon Lake\GIS\MXD 2014\ASDC\Archeol Report\MXDs\Avon Lake Cultural Report\SiteMapbook.mxd

[redacted]

nrg

Power to be free™

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

[redacted]

nrg

Power to be free™

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

[redacted]

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

[redacted]

nrg
Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological Site
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Topo Base Map Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

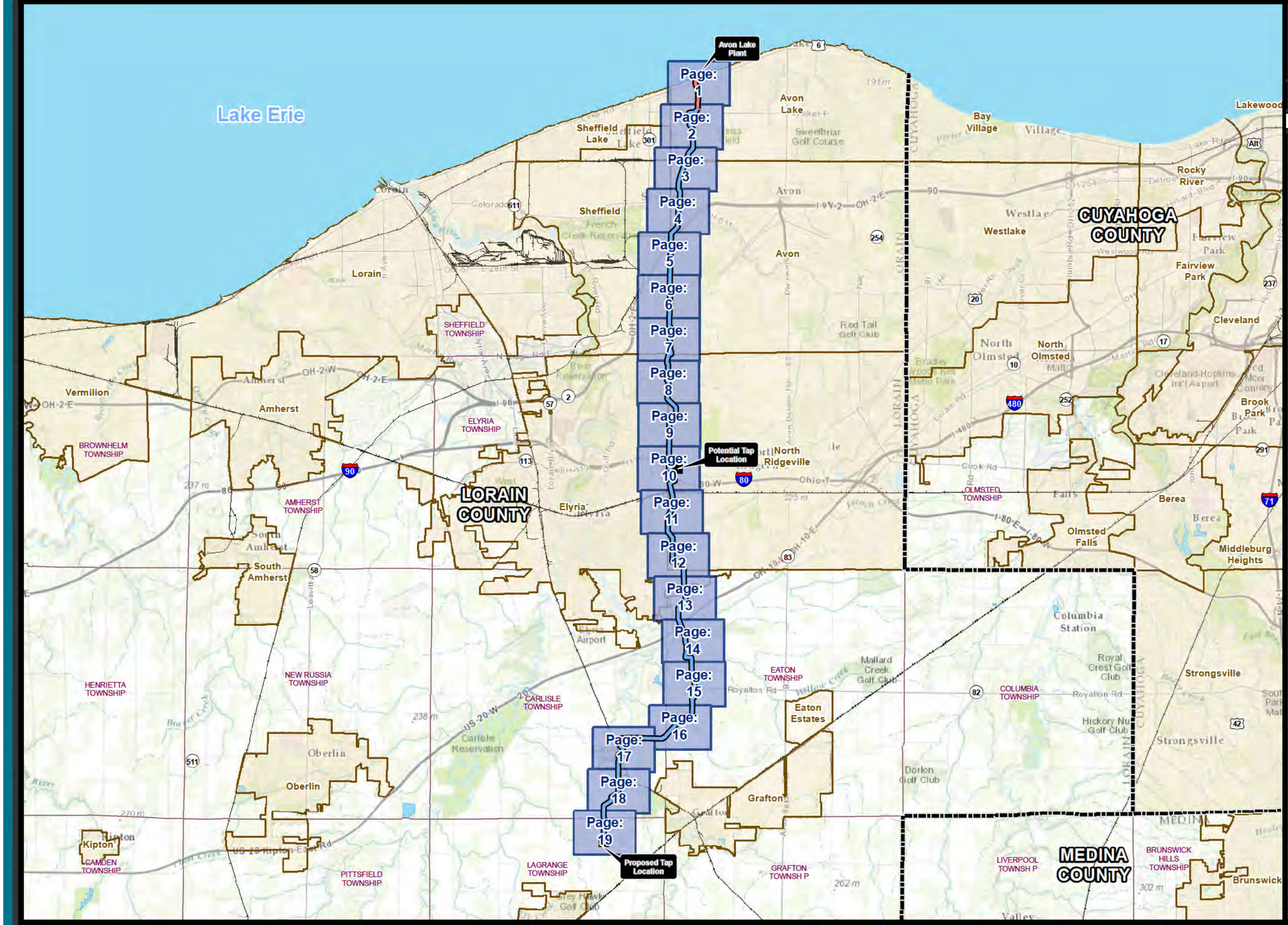
1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014 | Page: 19

Drawn by: JPS



nrg
Power to be free

AVON LAKE GAS ADDITION PROJECT

Appendix A Overview Map

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Map Extent Boundary
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Lake
- Railroad

Roads

- Interstate
- US Highway
- State Highway

1:122,000

0 0.45 0.9 1.8 2.7 3.6 Miles



Date: 12/15/2014

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 1
Drawn by: JPS	

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 2
Drawn by: JPS	

[redacted]

nrg
Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 3
Drawn by: JPS	

nrg
Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 4
Drawn by: JPS	

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 5
Drawn by: JPS	

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 7
Drawn by: JPS	

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 8
Drawn by: JPS	

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N

W E

S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

Page: 9

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014 | Page: 10

Drawn by: JPS



nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 11
Drawn by: JPS	

[redacted]

nrg
Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014 | Page: 12

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N W E S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 13
Drawn by: JPS	

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 14
Drawn by: JPS	

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N

W E

S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014

Drawn by: JPS

nrg
Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 17
Drawn by: JPS	

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 18
Drawn by: JPS	

nrg

Power to be free

AVON LAKE GAS ADDITION PROJECT

Archaeological Survey MapBook - Appendix A

Legend

- Above Ground Proposed Route
- Below Ground Proposed Route
- Mile Post Location
- Project Area
- Newly Identified Archaeological Site
- Previously Indentified Archaeological Site
- Previously Identified Archaeological S te
- Workspace
- Addendum I Pedestrian Survey Area
- Addendum I Pedestrian & Shovel Test Area
- Areas Excluded from Survey
- Previous Archaeological Survey Area (Bielakowski & Doperalski 2014)
- Previous Archaeological Survey
- Find Spot
- Field Delineated Ditch Feature

Existing Utilities

- Transmission/Distribution Line
- Existing Forced Sewer Main (Ohio RCAP 2006)
- Existing Water Main Line
- County Boundary
- Political Township Boundary
- Municipal Boundary
- Railroad

Roads

- Interstate
- US Highway
- State Highway

Data Source: Ohio Historic Preservation Office Online Mapping System 2014

Aerial Photo Source: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

N
W E
S

1:6,000

0 100 200 400 600 800 Feet



Date: 12/15/2014	Page: 19
Drawn by: JPS	

APPENDIX B: ARTIFACT CATALOG

33LN0284

State Site No.	Field No.	Provenience	Depth (cmbs)	Bag No.	Catalog No.	Weight (g)	Length (mm)	Width (mm)	Thickness (mm)	Period	Class	Type	Morphology1	Material
33LN0284	AV131-1	ST 1	20-30 cmbs	1	1 1	52 1	66 52	41 86	25 24	Historic	Ceramic; Stoneware	Container	Base Fragment	Stoneware; Gray Salt Glaze Exterior and Albany Slip Interior
33LN0284	AV131-1	ST 9	0-10 cmbs	2	2 1	3 3	58 02	----	4,61	Historic	Metal; Ferrous Alloy	Fastener	Wire Nail	Ferrous Alloy
33LN0284	AV131-1	ST 9	0-10 cmbs	2	2 2	2 9	58 02	----	3 77	Historic	Metal; Ferrous Alloy	Fastener	Wire Nail	Ferrous Alloy
33LN0284	AV131-1	ST 9	0-10 cmbs	2	2 3	1 4	32 46	----	2 51	Historic	Metal; Ferrous Alloy	Indeterminate	Wire	Ferrous Alloy
33LN0284	AV131-1	ST 14	0-10 cmbs	3	3 1	196 7	137 96	----	12 91	Historic	Metal; Ferrous Alloy	Fastener	Bolt	Ferrous Alloy
33LN0284	AV131-1	ST 14	0-10 cmbs	3	3 2	10 0	67 71	----	12 51	Historic	Metal; Ferrous Alloy	Fastener	Nail	Ferrous Alloy
33LN0284	AV131-1	ST 14	0-10 cmbs	3	3 3	9 3	51 50	----	9 79	Historic	Metal; Ferrous Alloy	Fastener	Nail	Ferrous Alloy
33LN0284	AV131-1	ST 17	20-25 cmbs	4	4 1	12 2	43 80	29 94	11 15	Prehistoric	Lithic; Chipped Stone	Tool	Biface	Indeterminate Chert
33LN0284	AV131-1	ST 18	10-20 cmbs	5	5 1	5 7	26 70	32 74	5 39	Historic	Glass; Curved	Container	Body Fragment	Glass-Clear
33LN0284	AV131-1	ST 19	0-10 cmbs	6	6 1	13 4	37 96	34 27	12 58	Historic	Glass; Curved	Indeterminate	Shattered	Glass-Aqua

APPENDIX C: PROJECT PERSONNEL

LIST OF PERSONNEL

Principal Investigator	Andrew Bielakowski, M.A., RPA Mark Doperalski, M.A., RPA
Field Archaeologists	
Field Directors	Mark Doperalski, M.A., RPA
Field Technicians	Ryan Lisson, B.S. Kyle Spurgeon, M.A.
Research Historians	Jessica Wobig, M.A. Kimberly Barnard, M.A.
Graphics and GIS	Jason Sphar, B.A.

CASE NO. 14-1717-GA-BLN
LON
AVON LAKE GAS ADDITION PROJECT
PROPOSED NATURAL GAS PIPELINE

ATTACHMENT D

PUBLIC MEETING HANDOUT

Avon Lake Gas Addition Project

NRG Ohio Pipeline Company LLC is developing an approximately 20-mile natural gas pipeline in Lorain County, Ohio in order to provide natural gas as a fuel source to the Avon Lake Power Plant. The Project will bring environmental, economic, employment and electric supply reliability benefits to the state of Ohio.

INTRODUCTION

NRG Ohio Pipeline Company LLC is developing an approximately 20-mile natural gas pipeline in Lorain County, Ohio in order to provide natural gas as a fuel source to the Avon Lake Power Plant. The pipeline, which is planned to be 24-inches in diameter, will require a permanent 50-foot easement for operation and maintenance and additional temporary easements for construction. Construction of the pipeline is expected to begin as early as summer/fall 2015.

PROJECT BACKGROUND

The Avon Lake Power Plant is a 734 MW coal-fired electricity generating facility located in Avon Lake, Ohio. The plant is owned by NRG Power Midwest LP, which is a subsidiary of NRG Energy, Inc. The plant was slated for retirement by the facility's prior owner eliminating many good paying jobs as well as a valuable asset to the tax base. After further review by NRG, it was determined that the plant could be economically repowered with clean natural gas to meet environmental regulations. To add natural gas as a fuel supply for the plant, an approximately 20-mile natural gas pipeline must be designed, permitted and constructed. The Avon Lake Gas Addition ("Project") will bring environmental, economic, employment and electric supply reliability benefits to the state of Ohio. The expected commercial operation date for the Project is June 2016.

PROPOSED ROUTE

The proposed pipeline route, as depicted on the reverse side of this fact sheet, will extend south from the Avon Lake Power Plant on the Lake Erie shoreline, to an existing gas pipeline owned and operated by Dominion East Ohio, located southwest of the Village of Grafton. The proposed route was developed by evaluating and balancing several factors including environmental, geographic, cultural, social and constructability.

COMPENSATION

Property owners will be compensated for an easement allowing the pipeline to traverse their property.

PROJECT APPROVALS

The Project requires siting approval from the Ohio Power Siting Board (OPSB), as well as additional permits and approvals from various federal, state and local agencies. NRG Ohio Pipeline Company anticipates submitting its application to the OPSB for its review and approval in fall 2014.

INVESTMENT

NRG Energy, Inc. is prepared to make a significant investment in the Project and pipeline. This investment is subject to receipt of all permits, approvals and property tax abatements.

FOR MORE INFORMATION REGARDING THE PROJECT CONTACT:

Mark Baird
Mark.Baird@nrgenergy.com
281.451.7526

FOR MORE INFORMATION REGARDING LAND EASEMENTS CONTACT:

Adam Carey
acarey@thenlsgroup.com
315.719.2318

nrg

The power to change life.℠

NRG is a registered servicemark of NRG Energy, Inc. © 2014 NRG Energy, Inc. All rights reserved. PLA.2014.6.11.

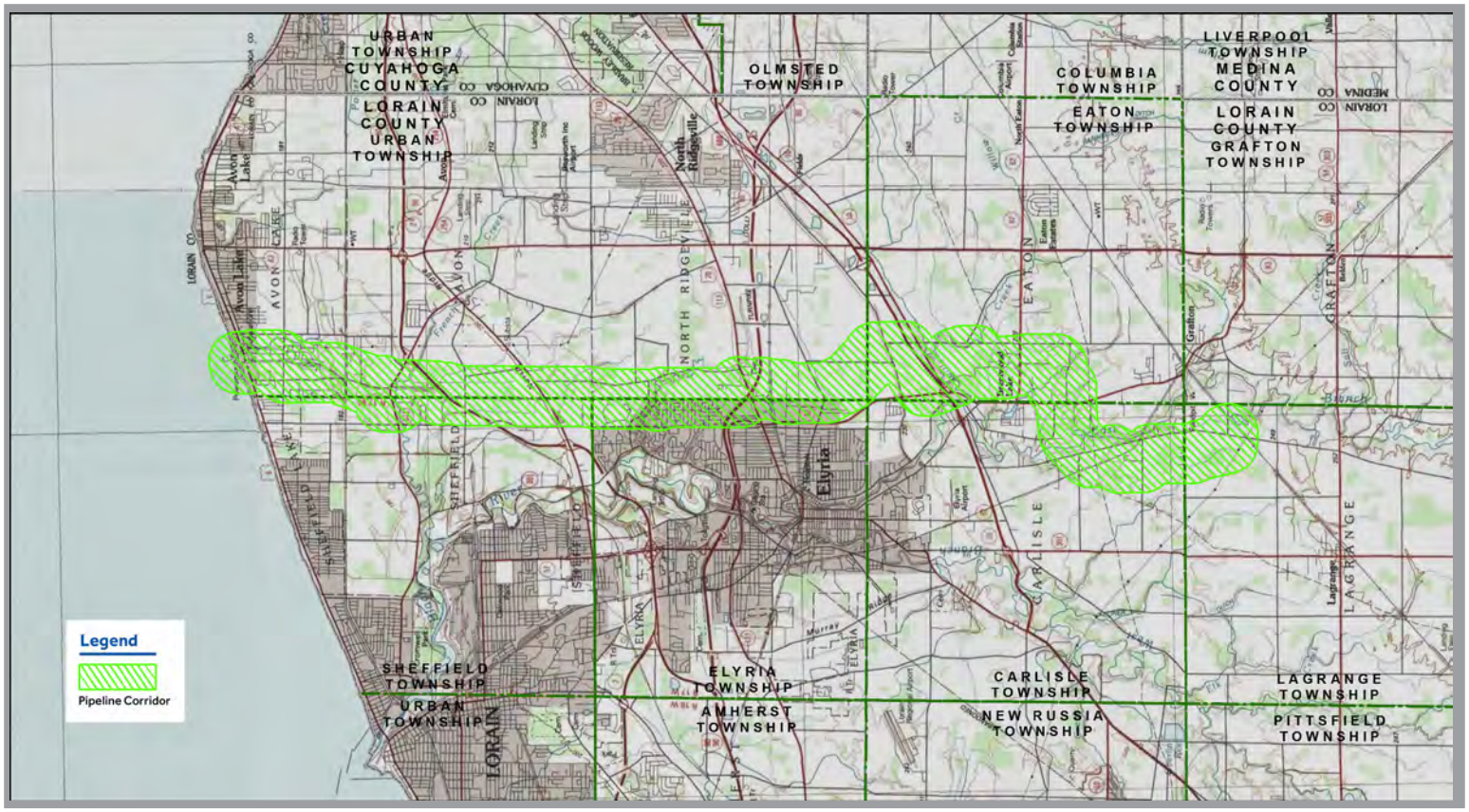
RIGOROUS PIPELINE SAFETY

According to the U.S. Department of Transportation, pipelines are the safest and most efficient way to transport liquid and natural gas energy in the United States. This pipeline will be designed and built to the highest safety standards. Steadfast quality control will be rigorously adhered to for every phase of pipeline development, from design through construction, prior to any gas moving through the line. It will be maintained and tested to ensure future integrity.

Safety is our top priority. NRG will meet or exceed all federal and state requirements for safe pipeline operations and maintenance, including using advanced, state-of-the-art materials, and monitoring and preventative services. These include:

- High quality pipeline materials and anti-corrosion coatings
- Cathodic protection that further inhibits corrosion
- Pipelines buried at least three feet deep and virtually unnoticed
- Identifiable markers of pipeline location for public safety
- Property is returned as close as possible to its former state
- Pipeline systems are controlled and monitored 24 hours/day
- Advanced safety inspection to ensure safe maintenance and operation

Avon Lake Gas Addition Project: Proposed Pipeline Corridor



Resources:
American Gas Association: www.aga.org
Interstate Natural Gas Association of America: www.ingaa.org
Natural Gas Supply Association: www.ngsa.org
Public Utilities Commission of Ohio: http://www.puco.ohio.gov/puco/
Ohio Power Siting Board: http://www.opsb.ohio.gov/opsb/

CASE NO. 14-1717-GA-BLN
LON
AVON LAKE GAS ADDITION PROJECT
PROPOSED NATURAL GAS PIPELINE

ATTACHMENT E

MODEL NOTIFICATION LETTER TO BE SENT TO LANDOWNERS

NRG Energy, Inc.
211 Carnegie Center
Princeton, NJ 08540

Phone: 609.524.4696
Fax: 609.524.4589

_____, 201x

VIA U.S. MAIL

[Landowner Name and Address]

Re: NRG Ohio Pipeline Company LLC

As you know, NRG Ohio Pipeline Company LLC ("NRG") is developing a natural gas pipeline to add natural gas as a fuel source for the Avon Lake Power Plant. The pipeline will be located on or near your property. Please be assured that during the construction, operation and maintenance of the pipeline, NRG will adhere to all applicable federal, state and local laws, regulations and ordinances.

Right-of-Way Project Timeline

Prior to construction NRG, or its contractors, must survey and stake the pipeline route and clear the portion of its easement along the pipeline. This right-of-way, granted by the recorded easement, provides the area necessary for the large equipment and materials used in the laying, maintaining and operating of the pipeline. NRG anticipates right-of-way site preparation, i.e. tree, brush and stump removal, to occur in _____ of 201x. NRG personnel, or its contractors, have begun preliminary work on this project. Access to landowner's property may be required for the following reasons:

- Further surveying and staking the pipeline route
- Further environmental assessment
- Archeological digging and exploration
- Right-of-way site preparation
- Any other activity as required by the project

Private Access to your Property

Private access to your property will be maintained open at all times where feasible. Due to construction activity, some access may be temporarily closed but will be reopened as quickly as possible. In that case, you will be notified in advance. Any public road closures will be communicated with the local policy, fire and emergency agencies.

If you have tenants occupying this parcel, please advise them of this pipeline project.

Should you have any questions concerning this pipeline project, please contact Alan Sawyer – Vice President, NRG Ohio Pipeline Company LLC – 609-524-4677.

Sincerely,
NRG Ohio Pipeline Company LLC

CASE NO. 14-1717-GA-BLN
LON
AVON LAKE GAS ADDITION PROJECT
PROPOSED NATURAL GAS PIPELINE

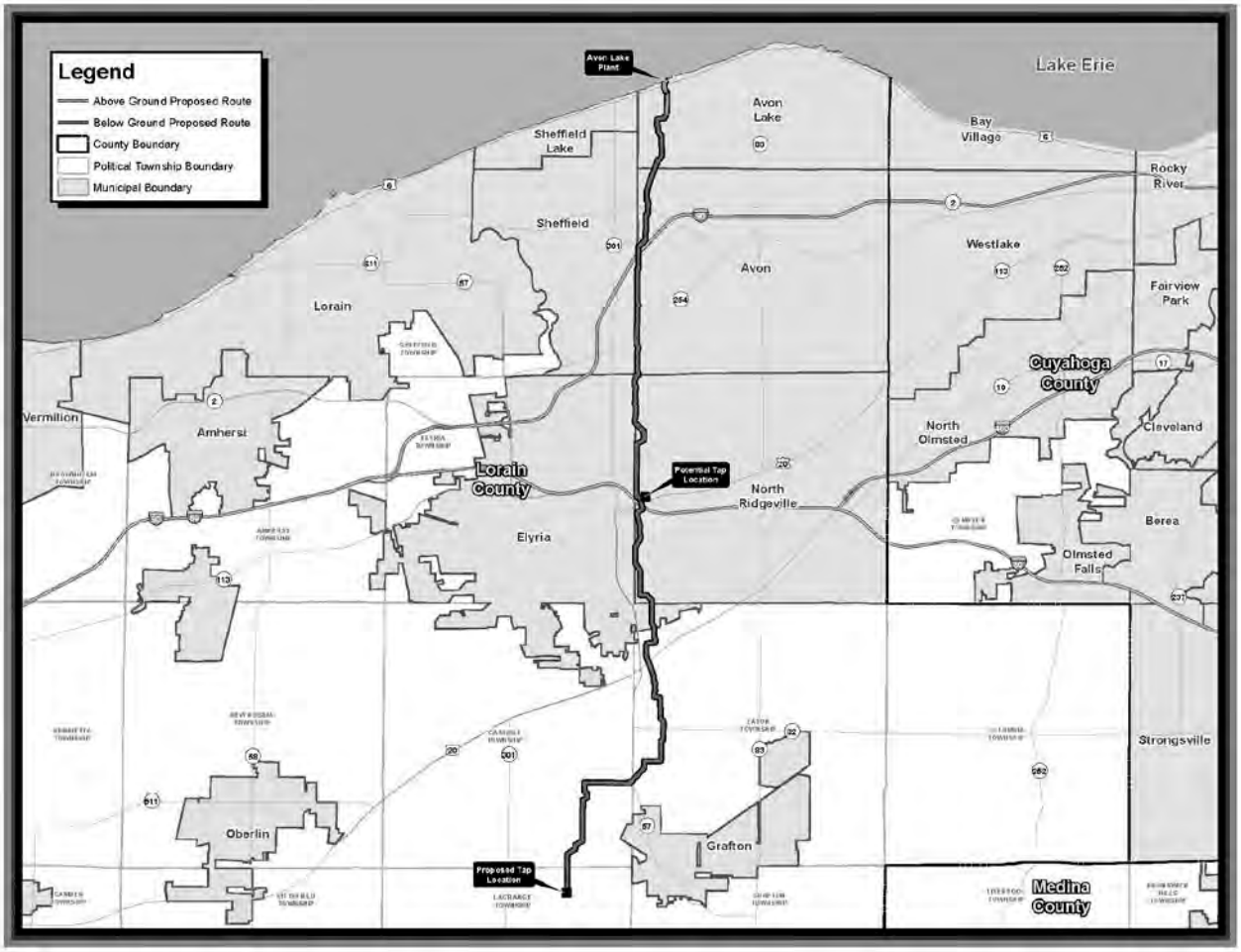
ATTACHMENT F

NEWSPAPER NOTICE

Notice of Proposed Major Utility Facility (New Pipeline Construction)

NRG Ohio Pipeline Company LLC ("NRG Ohio Pipeline") is proposing to construct an approximately 20 mile natural gas pipeline ("Project") to bring natural gas to the Avon Lake Power Plant. The Project will extend south from the existing Avon Lake Power Plant to a proposed supply tap location southwest of the Village of Grafton. The Project is located within the City of Avon Lake, the City of Avon, the City of North Ridgeville, the City of Elyria, and unincorporated portions of Carlisle, Eaton, and LaGrange Townships in Lorain County, Ohio.

The location of the proposed Project is shown on the map below:



A Letter of Notification ("LON") has been filed with the Ohio Power Siting Board ("Board") as Case No. 14-1717-GA-BLN in order to construct, operate, and maintain the proposed Project described above. The LON is pending with the Board and the Board will review the LON in accordance with Ohio Revised Code Section 4906.10(A) which states that the Board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the Board, unless it finds and determines all of the following: (1) The basis of the need for the facility; (2) The nature of the probable environmental impact; (3) That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations; (4) In the case of an electric transmission line, that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability; (5)

That the facility will comply with Chapters 3704., 3734., and 6111. of the Revised Code and all rules and standards adopted under those chapters and under Sections 1501.33, 1501.34, and 4561.32 of the Revised Code. In determining whether the facility will comply with all rules and standards adopted under Section 4561.32 of the Revised Code, the Board shall consult with the office of aviation of the division of multi-modal planning and programs of the department of transportation under Section 4561.341 of the Revised Code; (6) That the facility will serve the public interest, convenience, and necessity; (7) In addition to the provisions contained in divisions (A)(1) to (6) of this section and rules adopted under those divisions, what its impact will be on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929 of the Revised Code that is located within the site and alternative site of the proposed major utility facility; rules adopted to evaluate impact under Division (A)(7) of this section shall not require the compilation, creation, submission, or production of any information, document, or other data pertaining to land not located within the site and alternative site; and (8) That the facility incorporates maximum feasible water conservation practices as determined by the Board, considering available technology and the nature and economics of the various alternatives.

The following public officials were served a complete copy of the Letter of Notification: Greg Zilka, Mayor, City of Avon Lake; Joseph Reitz, Service Director, City of Avon Lake; Bryan Jensen, Mayor, City of Avon; Robert Knopf, City of Avon Engineer; Carolyn Witherspoon, Chair, City of Avon Planning Commission; G. David Gillock, Mayor, City of North Ridgeville; Larry Mollenkamp, Chairman, North Ridgeville Planning Commission; Scott Wangler, North Ridgeville City Engineer; Holly C. Brinda, Mayor, City of Elyria; Timothy Ujvari, Elyria City Engineer; Ted Kalo, Lori A. Kokoski, and Tom Williams, Lorain County Commissioners; Kenneth P. Carney, Lorain County Engineer; Will Schlechter, Chairman, Lorain County Soil and Water Conservation District; Matt Hignett, Randy Houston, and Jason Monschein, Eaton Township Trustees; Richard Knechteges, Administrative Assistant, Eaton Township; Robert White, Berry Taylor, and James Wright, Carlisle Township Trustees; William Oliver, Administrative Assistant, Carlisle Township; Douglas Gardner, Gary Burnett, and Rita Canfield, LaGrange Township Trustees; Vince Sigmund, Zoning Inspector, LaGrange Township; and David French, Road and Bridge Superintendent, LaGrange Township.

The LON is available for public inspection at the following libraries: The Avon Lake Public Library, 32649 Electric Blvd., Avon Lake, Ohio, 44012; the Avon Branch Library, 37485 Harvest Drive Avon, OH 44011; the North Ridgeville Branch Library, 35700 Bainbridge Road, North Ridgeville, Ohio 44039; and the Elyria Public Library, 320 Washington Ave., Elyria, Ohio 44035.

A copy of the LON is also posted on NRG Ohio Pipeline's web page at http://www.nrg.com/legal/avonlake/. In addition, copies of all filings in the case can be located at the Ohio Power Siting Board website at (http://www.opsb.ohio.gov) by scrolling down to "Pending Cases" and selecting the case by name or docket number.

Affected persons may file comments and/or motions to intervene in this matter with the Board up to ten (10) days following the publication of this notice. Comments or motions should be addressed to the Ohio Power Siting Board, 180 East Broad Street, Columbus, Ohio 43215-3793 and cite Case No. 14-1717-GA-BLN.