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November 21, 2016

Via Electronic Filing

Ms. Barcy McNeal
Public Utilities Commission of Ohio
Administration/Docketing
180 East Broad Street, 11th Floor
Columbus, OH 43215-3793

Re: Hog Creek Wind Farm LLC,
Case Nos. 09-277-EL-BGN and 10-654-EL-BGN,

Dear Ms. McNeal:

On March 22, 2010, the Ohio Power Siting Board ("OPBS") issued Hog Creek Wind Farm LLC ("Hog Creek") a Certificate of Environmental Compatibility and Public Need in Case No. 09-277-EL-BGN for Hog Creek I ("Hog Creek I Certificate"). On August 29, 2011, the OPSB issued a Certificate of Environmental Compatibility and Public Need in Case No. 10-654-EL-BGN for Hog Creek II ("Hog Creek II Certificate"). The orders in each of the cases established a set of conditions as part of the certificates.

Within these sets of conditions, **Hog Creek I Certificate Condition No. 18,** and **Hog Creek II Certificate Condition No. 14** require that:

Prior to construction, Hog Creek shall: prepare a Phase I cultural resources survey program acceptable to staff for archaeological work at known or probable kame sites/topographic rises, turbine locations, access roads, substation and laydown sites, and collection lines, and conduct an architectural survey of the project area consistent with the work program filed in this docket, . . . If the resulting surveys disclose a find of cultural, archaeological, and/or architectural significance, or a site that is likely to be eligible for inclusion on the NRHP, then Hog Creek shall submit an amendment, modification, or mitigation plan for staff's acceptance. Any such mitigation effort shall be developed in coordination with the Ohio Historic Preservation Office, with input from the Hardin County Historical Society, and submitted to staff for review and acceptance.

Attached is a copy of the Phase I Archaeological Survey dated November 2016. Thus, Hog Creek is in compliance with Hog Creek I Certificate Condition No. 18 and, Hog Creek II Certificate Condition No. 14. If you have any questions please call at the number listed above.

Sincerely,

Sally W Bloomfield

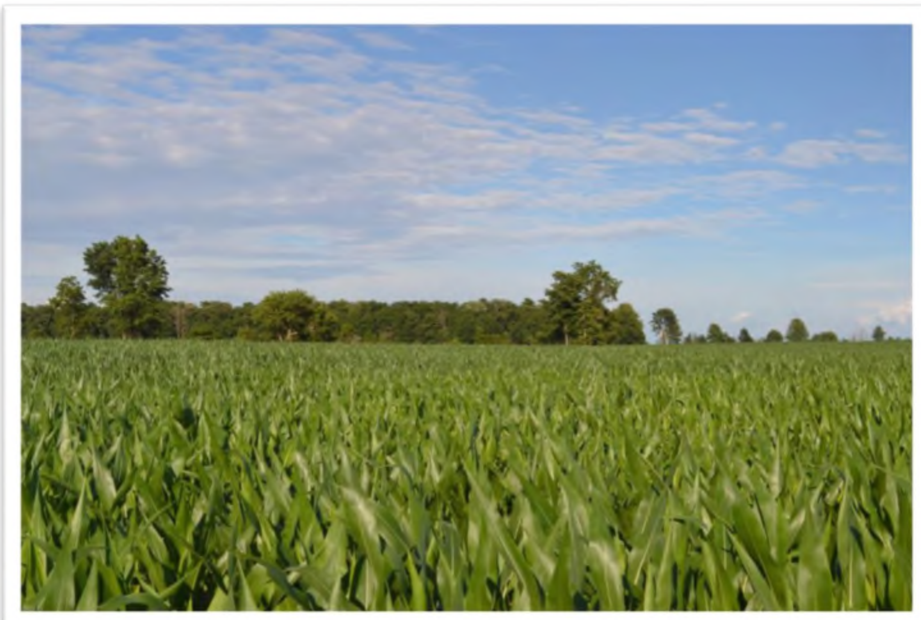
Sally W. Bloomfield

Attachment

cc: Andrew Conway (w/Attachment)
Jonathan Pawley (w/Attachment)

Hog Creek Wind Project
Hog Creek Wind Project, LLC
Hardin County, Ohio

Phase I Archaeological Survey



November 2016

PREPARED FOR

Hog Creek Wind Project, LLC
330 2nd Ave. South, Suite 820
Minneapolis, Minnesota 55401

PRESENTED BY

Tetra Tech, Inc.
2001 Killebrew Drive, Suite 141
Bloomington, MN 55425

MANAGEMENT SUMMARY

Hog Creek Wind Project, LLC (Hog Creek), a subsidiary of Renewable Energy Systems Americas Inc. (RES Americas), proposes to construct the Hog Creek Wind Project (the Project), located approximately 4 miles (mi) (6.4 kilometers [km]) northeast of Ada in Hardin County, Ohio. The proposed Project will have a nameplate capacity of 66 megawatts (MW), consisting of up to 30 wind turbines using Vestas 110 2.2 MW wind turbine generators. Additional facilities will include service roads, electrical collection systems and cabling, a collection substation, an operation and maintenance (O&M) building, temporary laydown/staging areas, and temporary crane walks. The Project will interconnect to American Electric Power Ohio's (AEP Ohio) 69-kilovolt (kV) system at via a tap to the existing Ada-Dunkirk 69-kV transmission line at the Project's substation.

The Project was originally permitted by the Ohio Power Siting Board (OPSB) in two separate cases, Case No. 09-277-EL-BGN (Hog Creek I Wind) and Case No. 10-654-EL-BGA (Hog Creek II Wind). A Phase I Archaeological Survey was previously conducted for the Hog Creek I and II Wind Projects on behalf of the previous Project owner, JUWI Wind/Great Lakes Wind, LLC, by Hardline Design Company (HDC) for portions of the previous construction easement between June 2011 and January 2012. A final report outlining the findings of this survey was submitted to the Ohio State Historic Preservation Office (SHPO) on July 10, 2012. This report received SHPO concurrence on August 8, 2012, and a Memorandum of Understanding (MOU) was completed between Hog Creek, SHPO, and Hardin County Historical Museums, Inc. that same month. However, the Project was never constructed, and in 2016, the Project was sold to RES Americas, which subsequently redesigned the Project to accommodate updated turbine technology and to conform to current Ohio setback regulations. The Project redesign resulted in a reduction in the number of turbines and new turbine and supporting facility locations.

The updated Project layout will require a Certificate of Site Compatibility from the OPSB (Case No. 16-1421-EL-BGA and Case No.16-12422-EL-BGA); therefore, the Project is subject to review by the SHPO under Ohio Administrative Code (OAC) 4906-04-08 – Health and Safety, Land Use and ecological information.

This is investigation is based on the following layouts:

- The turbine layout dated June 13, 2016, which includes 30 wind turbine generators;
- The service road layout dated June 21, 2016, which includes approximately 10 mi (16.1 km) of service roads;
- The electrical collection line route layout dated June 21, 2016, which includes approximately 13 mi (20.9 km) of collection lines;
- The substation and operations and maintenance facility layout dated June 13, 2016;
- The laydown area dated June 13, 2016; and
- The crane walk layout dated June 21, 2016, which includes approximately 10 mi (16.1 km) of crane walks.

The facilities and areas that may be impacted during development are referred to as the Construction Easement, which includes 326 ac (131.9 ha). Tetra Tech used an archaeological sensitivity model similar to that developed by

HDC to determine areas within the Construction Easement would be surveyed as part of this Project. The portions of the Construction Easement where the archaeological field survey was completed is referred to as the Survey Corridor, which includes approximately 101 ac (40.9 ha).

The Survey Corridor was determined based on a sample strategy that took into account landforms, soils, and the presence of known archaeological resources. The Construction Easement was divided into areas of high and low archaeological sensitivity based on these factors. Approximately 49 ac (19.8 ha) of the 326 ac (131.9 ha) Construction Easement lies within high archaeological sensitivity areas. Tetra Tech conducted archaeological surveys in 100 percent of this area. Approximately 277 ac (112.1 ha) of the 326 ac (131.9 ha) Construction Easement lies within low archaeological sensitivity areas. Tetra Tech conducted archaeological surveys in 10 percent of this area (52 ac [21.0 ha]), which was selected by dividing the Project into 1,000 feet (ft) by 1,000 ft (304.8 meter [m] by 304.8 m) blocks and randomly selecting 10 percent of those blocks.

A pedestrian survey was conducted for 100 percent of the 101 ac (40.9 ha) Survey Corridor and shovel testing was utilized in portions of the Survey Corridor with the less than 50 percent surface visibility. Within the Survey Corridor, Tetra Tech's archaeology team surveyed a 200-ft (61.0-meter [m]) diameter circular area centered on the proposed turbine locations, a 200-ft (61.0-m) corridor for the proposed service roads, a 40-ft (21.3-m) corridor for the proposed collection lines, and a 60-ft (18.3-m) corridor centered on the proposed crane walk.

Within the Survey Corridor, Tetra Tech documented three Euro-American early to middle 20th century artifact scatters associated with non-extant farmsteads or dumping activities (HR308, HR309, and HR310). Sites HR308 and HR309 were identified during the pedestrian survey, and additional historic document review coupled with shovel testing revealed that intact foundation and subsurface features may be present at these sites. Site HR310 does not appear to be associated within any known structures and appears to represent episodic dumping.

Tetra Tech recommended that sites HR308, HR309, and HR310 be avoided. Hog Creek has redesigned Project facilities to avoid these sites, which is reflected in the latest Project layout dated September 30, 2016. Tetra Tech has reviewed the September 30, 2016 layout and confirms that the Project facilities have been redesigned beyond the known extents of sites HR308, HR309, and HR310, and that the sites are no longer located in the Hog Creek Construction Easement. Since these sites are avoided, no formal evaluation of significance has been conducted, and it is Tetra Tech's opinion that the sites should be considered undetermined for inclusion to the National Register of Historic Places at this time. Because sites HR308, HR309, and HR310 are no longer located in Hog Creek Construction Easement, Tetra Tech recommends, per Ohio Administrative Code 4906-04-06(D), that no significant archaeological sites will be affected by the Project.

Site avoidance is recommended for all Project activities including construction, as well as preconstruction activities such as surveying and staking the proposed layout. Tetra Tech recommends delineating the site buffers with high-visibility snow fencing prior to any ground-disturbing activities. Such fencing will reduce the potential for inadvertent disturbance to the resources. An Archaeological Avoidance Plan has been developed and approved by the SHPO to accommodate any archaeological materials that may be unearthed during the construction of the proposed facilities (Appendix B). If areas beyond the Survey Corridor are to be used during construction, then Tetra Tech recommends that these areas be reevaluated for the potential to contain archaeological materials and surveyed if deemed appropriate. The results of any investigation should be presented in an addendum report for SHPO review.

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TABLES

APPENDICES

ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
B.P.	Before Present
ca.	Circa
GIS	Geographic Information System
GPS	Global Positioning System
kV	Kilovolt
MOU	Memorandum of Understanding
MW	Megawatt
NAIP	National Agriculture Imagery Program
NRHP	National Register of Historic Places
OAC	Ohio Administrative Code
SHPO	Ohio State Historic Preservation Office
OPSB	Ohio Power Siting Board
Project	Hog Creek Wind Project
PSC	Public Service Commission
ROW	Right-of-way
USGS	U.S. Geological Survey

1.0 INTRODUCTION

Hog Creek Wind Project, LLC (Hog Creek), a subsidiary of Renewable Energy Systems Americas Inc. (RES Americas), proposes to construct the Hog Creek Wind Project (the Project), located approximately 4 miles (mi) (6.4 kilometers [km]) northeast of Ada in Hardin County, Ohio (Appendix A, Figure 1). The proposed Project will have a nameplate capacity of 66 megawatts (MW), consisting of up to 30 wind turbines using Vestas 110 2.2 MW wind turbine generators. Additional facilities will include service roads, electrical collection systems and cabling, a collection substation, an operation and maintenance (O&M) building, temporary laydown areas, and temporary crane walks. . The Project will interconnect to American Electric Power Ohio's (AEP Ohio) 69-kilovolt (kV) system at via a tap to the existing Ada-Dunkirk 69-kV transmission line at the Project's substation.

Table 1: Public Land Survey (PLS) Description of the Project

County	Township	Range	Section(s)
Hardin	3 S	10 E	2-4, 7-12, 16-18, 20-21

1.1 PROJECT BACKGROUND

The Project was originally permitted by the Ohio Power Siting Board (OPSB) in two separate cases, Case No. 09-277-EL-BGN (Hog Creek I Wind) and Case No. 10-654-EL-BGA (Hog Creek II Wind). A Phase I Archaeological Survey was previously conducted for the Hog Creek I and II Wind Projects on behalf of the previous Project owner, JUWI Wind/Great Lakes Wind, LLC, by Hardline Design Company (HDC) for portions of the previous construction easement between June 2011 and January 2012 (Appendix A, Figure 2). A final report outlining the findings of this survey was submitted to the Ohio State Historic Preservation Office (SHPO) on July 10, 2012. This report received SHPO concurrence on August 8, 2012, and a Memorandum of Understanding (MOU) was completed between Hog Creek, SHPO, and Hardin County Historical Museums, Inc. that same month. However, the Project was never constructed, and in 2016, the Project was sold to RES Americas, which subsequently redesigned the Project to accommodate updated turbine technology and to conform to current Ohio setback regulations. The Project redesign resulted in a reduction in the number of turbines and new turbine and supporting facility locations

1.2 PROJECT DESCRIPTION AND SURVEY CORRIDOR

The investigation is based on the following layouts:

- The turbine layout dated June 13, 2016, which includes 30 wind turbine generators;
- The service road layout dated June 21, 2016, which includes approximately 10 mi (16.1 km) of service roads;
- The electrical collection line route layout dated June 21, 2016, which includes approximately 13 mi (20.9 km) of collection lines;

- The substation and operations and maintenance facility layout dated June 13, 2016;
- The laydown area dated June 13, 2016; and
- The crane walk layout dated June 21, 2016, which includes approximately 10 mi (16.1 km) of crane walks.

1.2.1 Turbines

Hog Creek proposes to install up to 30 wind turbines using Vestas 110 2.2 MW wind turbine generators. The staging area for the turbine typically requires a circular area measuring roughly 200 to 500 ft (61.0 to 152.4 meters [m]) in diameter, centered on the proposed turbine location. This area will be graded, leveled, and used for component laydown, assembly, and erection.

1.2.2 Service Roads

The service roads will include construction of new gravel-based roads linking the individual turbines along a string (or individually) to the public roads. Prior to laying down the road base material for the service roads, the proposed route will be graded (cut and fill of high and low areas) and 1 to 2 ft (0.3 to 0.6 m) of topsoil will be removed. The service roads will be approximately 20 ft (6.1 m) wide, have a low profile to allow cross-travel by farm equipment, and have a gravel cover adequate to support the size and weight of maintenance vehicles. The temporary road width may be temporarily constructed up to 68 ft (20.7 m) during construction to facilitate crane movement and equipment delivery.

1.2.3 Electrical Collection System

The electrical collection system (electrical and fiber optic cables) route will be either bored or trenched. Typically, the trenched electrical collection route will run parallel to service roads in the same location as temporary road impacts, or may cut cross-country. The trenches excavated during installation of the electrical collection system are typically 1.5 ft (0.5 m) wide and extend up to 6 ft (1.8 m) below grade.

Along roadways, waterways, or wetlands (locations not feasible for trenching), boring (directional drilling) may be used to pass cable under these features. The depth to which these bores are extended varies based on the horizontal and vertical size of the feature. The surface impacts during both trenching and boring of collection line are generally confined within a 40-ft wide (12.2-m) corridor.

1.2.4 Collection Substation, Operation and Maintenance Facility, and Laydown Area

The collection substation area will be cleared and graded prior to the installation of equipment foundations and grounding cables. After the subsurface components have been installed, the area will be leveled, and gravel will be deposited on the surface. The substation equipment will be mounted to the concrete equipment foundations and a secondary containment (concrete) barrier for spill prevention will be poured around the main power transformer. The operation and maintenance (O&M) facility will be built in the same area and include an O&M building, parking area, and an outdoor storage yard.

The temporary laydown area will be located to the west of the O&M facility and will be used for component storage. The laydown area will be graded, and gravel will be deposited to accommodate vehicle traffic.

1.2.5 Crane Walks

Proposed temporary crane walks will enable the movement of appropriate machinery between turbines during construction. The construction footprint during this process is generally confined within a 60-ft (18.3-m) wide corridor.

1.2.6 Construction Easement

These facilities and areas that may be impacted during development are referred to as the Construction Easement, which includes 326 ac (131.9 ha).

Within portions of the construction easement that were surveyed, Tetra Tech's archaeology team surveyed a 200-ft (61.0-m) diameter circular area centered on the proposed turbine locations, a 200-ft (61.0-m) corridor for the proposed service roads, a 40-ft (30.5-m) corridor for the proposed collection lines, and a 60-ft (18.3-m) wide corridor for the proposed crane walks.

1.2.7 Study Area

The Study Area for background review of the Project consists of a 1-mi (1.6-km) buffer of the Construction Easement. The file search and the historical background review included the Construction Easement and the Study area.

1.3 AGENCY INVOLVEMENT AND REGULATORY REQUIREMENTS

The Project will require an amendment to its certificates to install and operate wind-powered electric generation facilities from the Ohio Power Siting Board (OPSB) (Case No. 16-1421-EL-BGA and Case No.16-12422-EL-BGA); therefore, the Project is subject to review by the SHPO under Ohio Administrative Code (OAC) 4906-04-08 – Health and Safety, Land Use and Ecological Information (State of Ohio 2016).

OAC 4906-04-08 states the OPSB shall be guided by, but is not limited to, several considerations, where applicable, to aid the evaluation and designation of sites, corridors, and routes. Item D of OAC 4906-04-08 includes the effect of the proposed site or route on existing scenic areas, historic sites and structures, and archaeological sites.

1.3.1 Ohio State Historic Preservation Office (SHPO) Communications

Tetra Tech initiated SHPO communication in summer 2016 and communication continued through the fall of 2016. The details of these communications are provided below.

1.3.1.1 July 2016

In early July, Tetra Tech contacted Dr. David Snyder at the SHPO to provide an update on the Project and request input on the proposed survey design of an intensive archaeological survey of high archaeological sensitivity areas, and a 10 percent random sample survey of low archaeological sensitivity areas. Dr. Snyder provisionally approved the proposed survey design and requested a formal letter introducing the Project. He requested that the letter include maps of the previous and current layout, the proposed time frame for the Project, and a detailed description of the proposed survey design. Tetra Tech sent a formal inquiry letter to the SHPO on July 22, 2016.

1.3.1.2 September 2016

Tetra Tech received a response letter from Dr. Snyder on September 30, 2016 (Case No. 16-1422-EL-BGA and 16-1423-EL-BGA) approving Tetra Tech's proposed survey design of an intensive archaeological survey of areas with high archaeological sensitivity and a 10 percent sample survey of areas with low archaeological sensitivity. Dr. Snyder also requested avoidance of the previously documented significant archaeological sites 33HR0266 and 33HR0274 (see Section 5.1 below) and a Phase I Archaeological Survey Report.

1.4 ORGANIZATION OF THE REPORT

This report details the research methods, environmental and cultural background, results of the literature review, archaeological field survey results, recommendations, and conclusions. Mr. Adam Holven served as Principal Investigator, and Britt McNamara, Chelsea Starke, Emily Shepard, Peer Halvorsen, and Adam Holven served as authors. Several appendices provide supporting documentation and include Appendix A – Figures; Appendix B – SHPO Communications; Appendix C – Photographs; and Appendix D – Shovel Test Results.

2.0 METHODS

The purpose of this investigation is to provide the necessary information for the SHPO review by confirming the presence or absence of archaeological sites within surveyed areas of the Construction Easement. All work was conducted in accordance with the Ohio SHPO Archaeological Guidelines (SHPO 1994).

2.1 BACKGROUND RESEARCH

The Study Area was investigated through a file review completed using the SHPO online site mapping system on October 27, 2016. This file review included identifying archaeological sites and surveys within the Study Area.

The background research also included a review of historic sources, including historical atlases, county and regional histories, and aerial photographs. These documents were examined to identify historic structures, railroads, roads, and trails that might be present within the vicinity of the Construction Easement and that might be encountered during the field survey. Table 2 identifies historical maps and aerial photographs reviewed for the Study Area.

Table 2: Reviewed Historical Maps and Aerial Photographs

Type	Year	Reference
Atlas	1879	Sutton and Company
Topographic Map	1905, 1961	U.S. Geological Survey (USGS)
Aerial Photograph	1994, 2004, 2015	Google Earth

2.2 FIELD METHODS

HDC developed a predictive model for the previous Hog Creek I and II Wind Farm Phase I Archaeological Survey (Sewell and Bennett 2012). Based on landforms, soils, and the presence of known archaeological resources, the Project area was divided into areas of high and low archaeological sensitivity. Tetra Tech revised the original high/low archaeological sensitivity model to include new areas of the Construction Easement not assessed in the previous investigations (Appendix A, Figure 3).

Approximately 49 ac (19.8 ha) of the 326 ac (131.9 ha) Construction Easement lie within high archaeological sensitivity areas. Tetra Tech conducted archaeological surveys in 100 percent of this area. Approximately 277 ac (112.1 ha) of the 326 ac (131.9 ha) Construction Easement lie within low archaeological sensitivity areas. Tetra Tech conducted archaeological surveys in 10 percent of this area (52 ac [21.0 ha]), which was selected by dividing the Project area into 1,000 ft by 1,000 ft (304.8 m by 304.8 m) blocks and randomly selecting 10 percent of those blocks. Determining which 10 percent of the Project facilities were surveyed was done randomly prior to the fieldwork; however, minor modifications based on access and field conditions were made to optimize the results of the survey. The portions of the Construction Easement where the archaeological field survey was completed is referred to as the Survey Corridor, and included 101 ac (40.9 ha).

2.2.1 Pedestrian Survey

A systematic pedestrian surface survey was conducted in the Survey Corridor to determine the presence of artifacts or features on the surface. Where ground visibility was greater than 50 percent, 10-m (32.8-ft) interval transects were utilized, and where ground visibility was less than 50 percent, 5-m (16.4-ft) interval transects were utilized. A Trimble GeoXH 6000 Series global positioning system (GPS) unit operating ESRI ArcPad was used to navigate the Survey Corridor. Navigational accuracy was confirmed through the comparison of land parcels on the GPS and fence lines representing those boundaries during the survey. Land use, ground cover, and surface visibility were also documented during the pedestrian survey.

2.2.2 Shovel Testing

In areas with less than 50 percent ground surface visibility, shovel test units were implemented at 15-m (49.2 ft) intervals to assess the presence or absence of archaeological resources. Shovel tests were excavated at approximately 10-centimeter (cm) (3.9-inch [in]) levels until sterile soil horizons were encountered. All excavated sediments were passed through 0.25-in (0.6-cm) hardware mesh and examined for cultural materials. If cultural materials were encountered in shovel tests, then radial shovel tests were excavated at 5-m (16.4-ft) and 10-m (32.8-ft) intervals in the surrounding areas, where applicable, to determine the presence or absence of additional cultural materials and aid in site delineation.

2.2.3 Site Delineation

If isolated finds, artifact scatters, or features were identified during the pedestrian survey, an intensive surface survey of the area was conducted at 3-m (9.8-ft) interval transects to delineate the site's surficial boundaries. During this intensive pedestrian survey, the boundaries were flagged and the locations recorded with the GPS unit. The locations of temporally or culturally diagnostic artifacts and features were also recorded with the GPS.

In Ohio, an isolated find consists of "a single artifact found in an isolated context" and does not include finds of more than one artifact (including small scatters), a building foundation, a mine, or any other feature (SHPO 2003).

2.2.4 Site Documentation

A Tetra Tech geographic information system (GIS) specialist designed a geodatabase specifically for the Project that was used to capture data in the field using Trimble GPS technology, as well as to manage and display features for quality control and electronic client deliverables. The geodatabase contains four feature classes for data capture: artifact, feature, site, and shovel test. Additional attribute data built into the geodatabase were present as drop-down menus which allows specific feature information to be gathered in the field. Various attributes could be described within the geodatabase, including but not limited to: recorder, date, topography, vegetation cover, land use, site condition, site type, measurements, temporal affiliation, and site avoidance recommendations. Photographic documentation of the site included photographs of the site area from the cardinal directions and photographs of features, and temporally or culturally diagnostic materials *in situ*.

2.2.5 Assigning Temporal Affiliation

During the field survey, identified archaeological sites were recorded, described, and mapped, and cultural affiliation was assigned when possible. Clear temporal affiliation was assigned to site types such as lithic scatters (prehistoric) and abandoned farmsteads (historic). If sites contained features or artifacts of indeterminate temporal affiliation or contained both prehistoric and historic components, this information was also noted.

3.0 ENVIRONMENTAL BACKGROUND

A brief overview of past and present environmental conditions within the Study Area provides a foundation for understanding human subsistence and settlement patterns in the region over time. Understanding how environmental variables (availability of food, water, fuel, and tool materials) affected past decision making leads to a greater awareness of a region's potential archaeological resources.

3.1 GENERAL GEOLOGICAL HISTORY

The Study Area lies within the Central Ohio Clayey Till Plain section of the Central Lowland province in western Ohio (Ohio Division of Geological Survey [ODGS] 1998). The area is characterized by level ground moraines and lake basins interspersed with well-defined moraines. The surface geology of the Study Area includes late Pleistocene till deposits associated with melting glaciers and lake sediments (ODGS 1998).

Stone material resources that would have been available to Native Americans in this region consist of those found in the glacially deposited till. Additional stone material resources, such as cherts from Coshocton County and Licking County, may have been transported from other areas.

3.2 LANDFORMS

Locally, the majority of the Study Area falls within the former Hog Creek Marsh, an extensive wetland that was drained in the nineteenth century and converted to cropland (Sewell and Bennett 2012). Therefore, the landscape is generally flat with gently undulating rises associated with low ground moraines and kames around the former marsh basin (Appendix C, Photographs 1 and 2).

3.3 SOILS

The Study Area is comprised of numerous soil associations. The soil associations can be split into two groups: those associated with the former Hog Creek Marsh and those associated with ground and end moraines surrounding the marsh (Sewell and Bennett 2012; USDA-NRCS 2016). The dominant soil series associated with the marsh are Patton silty clay loam, Milford silty clay loam, and Roundhead muck. The parent materials for these soils include lacustrine deposits found on stream terraces and glacial lake plains, and organic materials over glacial-lacustrine deposits found on lake plains (USDA-NRCS 2016). The dominant soil series associated with the areas surrounding the marsh are Blount silt loam and Pewamo clay loam (Sewell and Bennett 2012; USDA-NRCS 2016). The parent materials for these soils include till deposits found on moraines, wave-worked till plains, till plains, and relict near-shore zones (USDA-NRCS 2016).

Those soils present in the Survey Corridor that formed in depositional settings are the most likely to contain buried paleosols and surfaces and thus have a higher potential to contain intact or stratified archaeological deposits. Although the soils in former Hog Creek Marsh were formed in an alluvial (depositional) setting, the soil series and climatic history suggest that much of the area was regularly inundated, which inhibits soil formation and reduces the potential that these soils will contain deeply buried archaeological materials.

Archaeological sites may also be present in non-depositional settings such as on gentle hills formed by glacial moraines and kames. Artifacts would be buried through natural soil formation at such locations, a relatively slow process compared with a more dynamic setting, such as a floodplain. On the moraines and kames, artifacts would be encountered shallow to the surface either within the organic horizon or in the horizon immediately below.

3.4 HYDROLOGY

The Study Area is located in the Lake Erie Watershed and is drained by various drainage ditches, including the Hog Creek Ditch, the Fitzhugh Ditch, and the Spoil Bank Ditch. These ditches drain generally to the west into Hog Creek, north of Ada. Hog Creek drains northward to the Ottawa River, which drains northwest to the Auglaize River. The Auglaize flows northward and drains into the Maumee River, which then flows into Lake Erie.

3.5 POSTGLACIAL CLIMATE CHANGE

Much of what is known about the post-glacial climate and associated vegetation regimes of Ohio has been derived by examining pollen in sediment layers from lakes and bogs throughout central Ohio and eastern Indiana (Ogden 1966; Glover et al. 2011). Prior to the retreat of glaciers in Ohio approximately 13,000 to 14,000 Before Present [B.P.], the Study Area likely resembled tundra. The cool, moist climate that followed the end of the Wisconsinan period of the Pleistocene epoch (13,000 to 12,000 B.P.) allowed for the growth of spruce-dominated boreal forests in Ohio, roughly correlating with the arrival of the first people in Ohio (Ogden 1966; Glover et al. 2011).

Between 12,000 and 8,500 B.P., climatic trends began to shift toward a warmer environment, which allowed for the spread of hardwood forests throughout northeastern North America (Ogden 1966; Glover et al. 2011). Oak-hickory forest predominated in northern Ohio until Euro-American settlement approximately 300 years ago; however, an increase in non-arboreal pollens from approximately 6,000 to 5,000 B.P. indicates that the climate was slightly drier during that period before returning to previous moisture levels (Ogden 1966).

Contemporary climatic trends for Hardin County include a continental climate (USDA 1994). Seasonal extremes in temperature fluctuation are quite common, with summers being generally very hot when warm air pushes northward from the Gulf of Mexico and the southwestern United States, and winters being generally cold. The average precipitation within the Study Area is approximately 21 inches per year, with most rain falling between late spring and early summer.

3.6 ECOLOGICAL RESOURCES

As the regional climate shifted during the late Pleistocene and throughout the Holocene, so did the faunal and floral resources available for human exploitation. At the end of the last ice age, early inhabitants may have encountered mammoth, mastodon, stag-moose, caribou, shrub oxen, musk oxen, giant bison, short-faced bear, giant beaver, and ground sloth. Most of these animals became extinct at the end of the Wisconsinan period, while the ranges of caribou and musk oxen progressively moved north out of Ohio and into present-day Canada.

As conditions became warmer and drier during the Holocene, large and small woodland animals became the dominant species. Animal species such as white-tailed deer, black bears, gray wolf, mountain lions, coyote, fox, beaver, cottontail rabbits, raccoon, and opossum began to expand across the state, finding niches in the many diverse habitats. These species were all present at the time of Euro-American contact and are still found in the state, with the exception of the black bear and gray wolf. Other animal resources available to prehistoric and historic peoples would have included waterfowl, fish, turtles, and mussels found in the Ohio River and its tributaries.

Prior to intensive agricultural development (circa [ca.] 1860), oak-hickory forest covered the Study Area and much of Ohio. Hazelnuts, acorns, hickory, black walnuts, and chestnuts would have been available for people to gather. Today, agricultural fields predominate the landscape (Fort Ancient 2013).

4.0 CULTURAL BACKGROUND

This section provides a brief summary of the known cultural resources within the region. Similar to Section 3.0 Environmental Background, a general understanding of a region's cultural resources is necessary for interpretations of newly documented sites. For additional information on the cultural background see Sewell and Bennett (2012).

4.1 PRECONTACT PERIOD

Prehistoric cultures within Ohio are divided into four major traditions: Paleoindian, Archaic, Woodland, and Late Prehistoric. These traditions are subdivided into stages based largely on technological innovations that can be observed in the archaeological record. These innovations include changes in the forms of projectile point styles or the decoration of pottery. Behavioral adaptations such as changing subsistence and mobility patterns also serve as points of reference in determining the transition from one tradition to another. The following descriptions are excerpted from the previous Hog Creek Wind Farm archaeological survey report (Sewell and Bennett 2012).

4.1.1 Paleoindian Tradition (11,450 – 10,000 B.P.)

The Paleoindian Tradition (11,450 – 10,000 B.P.) is associated with the first evidence of human occupation in North America, and is characterized by hunting and gathering adaptations with a notable concentration on now-extinct big game animals. The beginning of the Paleoindian Tradition focused attention on Pleistocene fauna such as mammoths and camelops; later focus was on species intermediate in size between late Pleistocene and modern forms. Other characteristics of this tradition include: (1) geographically extensive interaction networks between social groups (Hayden 1981), and (2) distinctive lanceolate projectile point styles by which the various Paleoindian cultural complexes are identified. In the Midwest, the earliest fluted point style is the Gainey, followed temporally by the waisted Barnes type and then the multi-fluted Crowfield varieties. Such points are usually identified in Ohio as isolated surface finds along the Ohio River tributaries, including the Scioto, Miami, and Upper Muskingum Rivers, which are located near the Study Area.

At least 14 fluted points have been recorded in Hardin County, and an additional three archaeological sites with Paleoindian components have been identified on the western boundary of the Hog Creek Marsh, beyond the boundaries of the Study Area. The Hog Creek region has long been known to yield Paleoindian points, but none have ever been recovered from within the marsh itself (Sewell and Bennett 2012).

4.1.2 Archaic Tradition (10,000 – 3,000 B.P.)

The Archaic Tradition spans 7,000 years and is subdivided into the Early (10,000 – 8,000 B.P.), Middle (8,000 – 5,000 B.P.), and Late (5,000 – 3,000 B.P.) periods. This tradition continues the hunting and gathering adaptations of the Paleoindian Tradition, but is marked by cultural changes such as: (1) further diversification in projectile point styles (possibly representing regionalization of populations), (2) decline in the quality of flint knapping craftsmanship, (3) the development of ground stone technology, (4) the emergence of mortuary practices, and (5) the establishment of regional trading systems along the major river valleys. These cultural changes likely reflect an increase in the reliability of access to subsistence resources, such as local riverine and plant species.

At least three Archaic-component sites are located near the Project on glacial moraines along the boundary of Hog Creek Marsh. Two additional Archaic-component sites were identified near the Project during a previous study for the Hog Creek Wind Project (Sewell and Bennett 2012).

4.1.3 Woodland Tradition (3,000 – 950 B.P.)

The Woodland Tradition spans around 2,000 years and is subdivided into the Early (3,000 - 2,150 B.P.), Middle (2,150 – 1,550 B.P.), and Late (1,550 - 950 B.P.) periods. Woodland Tradition lifeways are thought to have shared many similarities with those of the Archaic. However, the production and use of ceramic vessels, the increased reliance on domesticated crops, the practice of mound burial mortuary ceremonialism, the rise of bow-and-arrow technology, and the increase in nucleated, fortified settlements appeared during the Woodland Tradition. Such far-reaching cultural behaviors likely increased household and intra-community social complexity.

One archaeological site with a Woodland component was identified near the Project during a previous study for the Hog Creek Wind Project (Sewell and Bennett 2012).

4.1.4 Late Precontact Period (950-300 B.P.)

The Late Precontact Period spans 650 years from 950 – 300 B.P. Lifeways during this period are often characterized by increasingly populated sedentary villages with a central plaza and surrounding palisade; kinship-based organization within each household; reliance on maize, squash, and bean agriculture; varying social stratification from community to community; and far-reaching cultural exchange systems. Mississippian influence on Late Precontact peoples during this period is extensive and most evident in the widespread use of shell-tempered ceramics and large-scale landscaping efforts. There are no known sites from the Late Precontact Period that are located near the Project (Sewell and Bennett 2012).

4.2 HISTORIC CONTEXT

This section provides a brief summary of the historical context for archaeological resources in present-day Hardin County and the surrounding area. A general understanding of a region’s cultural history is necessary for interpretations of newly documented resources. For additional information on the region’s history, refer to Sewell and Bennett (2012).

4.2.1 Ohio

The first Europeans to enter present day Ohio were French missionaries and traders (Knepper 1997). In the early 1610s, Etienne Brule, a Frenchman living with members of the Huron Nation became the first European to see Lake Erie (Canadian Museum of History 2016; Knepper 1997). Another French explorer Rene de La Salle explored the Ohio River in 1670 and the Mississippi River in 1682 (Ohio History Central 2016). French Jesuits soon followed these traders and explorers into the area and began establishing missions among the native tribes (Knepper 1997).

For the next 100 years, present day Ohio was part of a struggle for power between France and Great Britain, which culminated in the Seven Years War and the 1763 Treaty of Paris, in which France ceded most official claims to land in North America (Office of the Historian 2016). A period of Euro-American encroachment on Native American lands followed, and after the American Revolutionary War, many Native

American tribes were forced to sign treaties with the newly formed United States in which they formally ceded all clams to their lands (Sewell and Bennett 2012).

In 1803, Ohio became a state and began to expand its borders through various treaties: the Treaty of Fort Industry annexed the north-central portion of modern-day Ohio and the Treaty of Fort Detroit annexed Toledo and parts of Michigan territory. Native Americans continued to cede large tracts of land to the state of Ohio until 1818, when the only Native Americans left resided in small reservations in northwest Ohio. In 1842, the Wyandot officially ceded the last reservation in Ohio near Upper Sandusky, and all Ohio tribes were relocated to reservations in the present states of Oklahoma, Kansas, and Nebraska (Sewell and Bennett 2012).

4.2.2 Hardin County

Northwestern Ohio, including present day Hardin County, was opened to European settlement by the 1817 Treaty of Maumee Rapids. Hardin County was subsequently established in 1820 from lands formerly belonging to Logan County. It was officially organized in 1833 and named for Colonel John Hardin, an American Revolutionary War officer who was killed in 1792 on a “mission of peace” in the area (Sewell and Bennett 2012).

Settlement of Hardin County was hindered by densely timbered land and three large marshes. However, the introduction of the railroad in the late 1840s helped establish the communities of Dola (then called North Washington), Dunkirk, and Ada (then called Johnston) (Sewell and Bennett 2012). These communities were largely agricultural, and Hardin County has maintained its agricultural economy since its establishment. Cropland accounts for nearly 80 percent of its modern land-use. Following the establishment of the railroad and subsequent communities, the county’s population more than quadrupled from 4,583 in 1840 to 27,023 in 1880 (Warren, Beers & Co. 1883); Hardin County’s present-day population has remained relatively constant through the years, varying between 27,000 and 32,000 people (Sewell and Bennett 2012).

4.2.3 Washington Township

Washington Township, formed in late 1835 or early 1836, was originally comprised mostly of the Hog Creek Marsh, a large 8,000 ac (3,237.5 ha) marsh covering the western portion of the township. The remaining land was dominated by woodlands. The first settlers of the county arrived between 1832 and 1840 and likely settled in Dola just before the establishment of the Pittsburgh, Fort Wayne, and Chicago Railroad in 1852. The railroad was completed in 1862 when the railroad grade through Hog Creek Marsh was stabilized so that the tracks would not sink (Sewell and Bennett 2012).

In 1868 efforts to drain the marsh began so that the area could be used for agriculture. The marsh was drained via ditching and the widening, deepening, and straightening of the Hog Creek channel. These efforts took six years to complete, and cost landowners $13 per acre at the time (The Historical Marker Database 2016).

5.0 RESULTS OF LITERATURE REVIEW

This literature review provides a general understanding of the investigations that have occurred within the Study Area and the cultural resources identified by these investigations.

5.1 PREVIOUS ARCHAEOLOGY INVESTIGATIONS

One previous archaeological survey has been conducted that intersects the Construction Easement (Appendix A, Figure 2). In 2012, HDC conducted a Phase I Archaeology Survey for the Hog Creek I and II Wind Projects. HDC identified 19 archaeological sites (Sewell and Bennet 2012; Appendix A, Figure 2; Table 3). Two sites, 33HR0268 and 33HR0274, identified by Sewell and Bennet (2012) were located within the Construction Easement. Site 33HR0268, a refuse dump, and 33HR0274, a biface isolated find, were both recommended Not Eligible for the National Register of Historic Places (NRHP). Additionally, Tetra Tech shovel tested around 33HR0274 and documented no archaeological material in the subsurface (Appendix A, Figure 4 – C8).

Two previous archaeological surveys have been conducted with the Study Area, but outside the Construction Easement (Appendix A, Figure 2). In 1992, the ASC Group surveyed the Route 30 corridor (Grimes et al. 1992, Manuscript No. HK1607). The ASC Group conducted an addendum survey of the Route 30 corridor in 1993 (Mustain and Dobson-Brown 1993, Manuscript No. HK161100). The two surveys identified six archaeological resources and four architectural resources within the Study Area.

5.2 PREVIOUSLY DOCUMENTED CULTURAL RESOURCES

Twenty-seven archaeological sites, five architectural resources, and four cemeteries are documented in the Study Area (Appendix A, Figure 2; Table 3). Of the 27 archaeological sites, 19 were documented as part of the Phase I Archaeological Survey for the Hog Creek I and II Wind Projects, including 6 prehistoric sites, 7 prehistoric isolated finds, 3 historic dumps, 1 farmstead, 1 historic isolated find, and 1 historic dump with a prehistoric (isolated find) component (Sewell and Bennet 2012).

Out of the 19 archaeological sites identified during the previous Hog Creek archaeological survey, Site 33HR267 and Site 33HR279 contained substantial prehistoric deposits and were recommended Eligible for inclusion in the NRHP. Site 33HR267 contained Karnak, Susquehanna Broad, and Brewerton Corner-notched projectile points, which date to the Late Archaic period. Site 33HR279 contained Brewerton Corner-notched, Brewerton Side-notched, and a Steuben or Snyder's type point, which indicates both a Late Archaic and Middle Woodland occupation. Site 33HR267 and Site 33HR279 were avoided in the previous facility layout for the Hog Creek Project and are not located within the current Construction Easement.

Table 3: Previously Documented Cultural Resources within Study Area

SHPO No.	Location	Description	DOE*
33HK0283	Study Area	Prehistoric Site – Unknown function	Not Evaluated
33HK0376	Study Area	Prehistoric Site – Unknown function	Not Evaluated

SHPO No.	Location	Description	DOE*
33HK0377	Study Area	Prehistoric Site – Unknown function	Not Evaluated
33HK0540	Study Area	Prehistoric Site – Unknown function	Not Evaluated
33HK0541	Study Area	Prehistoric Site – Unknown function	Not Evaluated
33HK0586	Study Area	Prehistoric Site – Unknown function	Not Evaluated
33HR0015	Study Area	Jake Deimer Kame Late Archaic Site	Not Evaluated
33HR0016	Study Area	Jake Wilke Kame Late Archaic Site	Not Evaluated
33HR0247[H]	Study Area	Historic Refuse Dump	Recommended Not Eligible
33HR0248[H]	Study Area	Historic Isolated Find	Recommended Not Eligible
33HR0249[H]	Study Area	Historic Refuse Dump	Recommended Not Eligible
33HR0250[H]	Study Area	Prehistoric Isolated Find	Recommended Not Eligible
33HR0251[H]	Study Area	Prehistoric Isolated Find – End Scraper	Recommended Not Eligible
33HR0252[H]	Study Area	Prehistoric Site – Lithic Scatter	Recommended Not Eligible
33HR0266[H]	Study Area	Prehistoric Isolated Find – Flake; Historic Refuse Dump	Recommended Not Eligible
33HR0267[H]	Study Area	Prehistoric Habitation Site	Recommended Eligible
33HR0268[H]	Construction Easement	Historic Refuse Dump	Recommended Not Eligible
33HR0269[H]	Study Area	Prehistoric Site – Lithic Scatter	Recommended Not Eligible
33HR0270[H]	Study Area	Prehistoric Site – Lithic Scatter	Recommended Not Eligible
33HR0271[H]	Study Area	Prehistoric Isolated Find – Flake	Recommended Not Eligible
33HR0272[H]	Study Area	Farmstead	Recommended Not Eligible
33HR0273[H]	Study Area	Prehistoric Isolated Find – Biface	Recommended Not Eligible
33HR0274[H]	Construction Easement	Prehistoric Isolated Find – Biface	Recommended Not Eligible
33HR0275[H]	Study Area	Prehistoric Site – Artifact Scatter	Recommended Not Eligible
33HR0276[H]	Study Area	Prehistoric Isolated Find – Fire Cracked Rock	Recommended Not Eligible
33HR0277[H]	Study Area	Prehistoric Isolated Find – Projectile Point Fragment	Recommended Not Eligible
33HR0279[H]	Study Area	Prehistoric Site – Resource Processing Site	Recommended Eligible
HAN0046816	Study Area	Cliff Hinkle House	Not Evaluated
HAN0047016	Study Area	Claude Neiswander House	Not Evaluated
HAN0051816	Study Area	Chicken Coop	Not Evaluated
HAN0058517	Study Area	Windmill Site 611	Not Evaluated
HAR0001110	Study Area	Fort Necessity Historic Marker	Not Evaluated
4900	Study Area	Mcelroy Cemetery	Not Evaluated

SHPO No.	Location	Description	DOE*
4936	Study Area	Jones-Helms-Kridler Cemetery	Not Evaluated
4940	Study Area	Wagoner Cemetery	Not Evaluated
14630	Study Area	American Indian Burial Ground	Not Evaluated

*DOE = Determination of Eligibility
H Recorded during Hog Creek I and II Wind Project

6.0 RESULTS OF THE ARCHAEOLOGICAL SURVEY

Field surveys were initiated in July 2016 and completed in September 2016 by staff from Tetra Tech.

6.1 LAND USE AND SURFACE CONDITIONS DURING THE PEDESTRIAN SURVEY

Land use within the Survey Corridor was agricultural cropland including soybean and corn fields. (Appendix C, Photographs 1 through 4). Surface visibility in July 2016 was generally good due to immature crops. At the completion of the survey, 79.6 ac (32.2 ha), or 79 percent, of the Survey Corridor, not including road ROWs, had been surveyed with surface visibility conditions greater than 50 percent, while 21.8 ac (8.8 ha) or 21 percent of the Survey Corridor, not including road ROWs, had been surveyed with surface visibility conditions less than 50 percent. Landscape visibility during the survey was fair to good.

Three archaeological resources were documented during the pedestrian survey within the Survey Corridor.

6.2 SHOVEL TESTING

A total of 382 shovel tests were completed as part of this Project, including 355 shovel tests at 14 locations where ground visibility was less than 50 percent, and 27 shovel tests located within the boundaries of 2 archaeological sites identified during pedestrian survey (Appendix A, Figure 4; Appendix C, Photographs 5 through 14; Appendix D). Of the 355 shovel test conducted in areas were ground visibility was less than 50 percent, 351 shovel tests were negative for cultural materials (Table 4). Two shovel tests positive for cultural materials were located on the service road west of Turbine 30 adjacent to the boundary of Site HR308 and are included as part of that site. Two shovel tests located on the collection line east of Turbine 3 produced modern glass shards in the plowzone. Based on the age of these glass fragments, they do not represent an archaeological site.

Of the 27 shovel tests located within the boundaries of sites identified during pedestrian survey, 13 were positive for cultural materials, mostly within the plowzone (Table 4). The majority of positive shovel tests (10) were located within Site HR309 and included historic glass, whiteware, clinker, coal, brick and mortar. Three of the positive shovel tests were located within Site HR308 and included historic glass.

Table 4: Results of Shovel Testing

Location	No. Shovel Tests	Results
HR308	10	HR308: Historic Scatter and Foundation; two positive shovel tests within a grassy area, and one in the plowzone. No artifacts recovered from below the plowzone
HR309	17	HR309: Historic Scatter; Nine positive shovel tests in the plowzone, and one in a possible fill layer that extends below the plowzone.

Location	No. Shovel Tests	Results
Collection Line East of T3	15	2 positive shovel tests in the plowzone. Items consisted of modern glass. No material recovered from below the plowzone.
Collection Line Southeast of T3	6	No Cultural Materials
T7	57	No Cultural Materials
Collection Line Northeast of T7	5	No Cultural Materials
Service Road East of T10	13	No Cultural Materials
T14	8	No Cultural Materials
T26 and Service Road West of T26	109	No Cultural Materials
Collection Line Southwest of T26	21	No Cultural Materials
Collection Line South of T27	2	No Cultural Materials
T29 and Service Road East of T29	58	No Cultural Materials
Collection Line Southeast of T29	26	No Cultural Materials
T30	12	No Cultural Materials
Service Road West of T30	20	HR308: Historic Scatter and Foundation; 2 positive shovel tests
County Road 14 and County Road 113	3	No Cultural Materials
Total	**382**	

6.3 NEWLY DOCUMENTED ARCHAEOLOGICAL SITES

Within the Survey Corridor, Tetra Tech documented three Euro-American early to middle 20th century artifact scatters associated with non-extant farmsteads (HR308 and HR309) and dumping activities (HR310) (Appendix A, Figures 3 and 4; Table 5).

Table 5: Newly Documented Archaeological Resources

Site No.	Figure 4 Map Page & Facility Location	Affiliation & Site Type	Inferred Function
HR308	C2 Service Road west of T30	Euro-American Foundation and Artifact Scatter	Farmstead
HR309	C4 Service Road west of T18	Euro-American Artifact Scatter	Farmstead/Historic Dump
HR310	C5 Collection Line North of T21	Euro-American Artifact Scatter	Historic Dump

6.3.1 Site HR308

Site HR308 is a Euro-American artifact scatter and foundation identified during pedestrian survey and shovel testing of the service road west of Turbine 30 (Appendix A, Figures 3 and 4-C2; Appendix C, Photographs 5 through 9). The artifact scatter was located in two areas. The first distribution of the artifact scatter and a foundation were located in a grassy area with 0 to 25 percent ground surface visibility immediately north and west of an agricultural field. The foundation measured approximately 30 ft by 15 ft (9.1 m by 4.6 m) and was manufactured with poured concrete. A dense scatter of metal fragments, wood fragments, bricks, a rubber hose, and a tire was observed on and around it. The second distribution of artifacts was identified on the western edge of an agricultural field with 50 to 75 percent ground surface visibility. Here a dense scatter containing whiteware, yellow glazed ceramics, bottle glass, metal fragments, and bricks was observed. No diagnostic artifacts were identified; however based on the types of observed cultural materials and presence of modern hoses and a tire, the site likely dates from between the early 1900's and the modern period.

Ten shovel tests were placed within the boundaries of the HR308 site established during the pedestrian survey. Seven were located within the agricultural field and three were located within the grassy area. A total of three shovel tests were positive: two within the grassy area and one within the agricultural field. Shovel Test No. 2 revealed one piece of historic glass. Shovel Test No. 3 revealed two pieces of glass, and Shovel Test No. 4 revealed one piece of glass. All glass shards were less than 2 cm (0.78 in.) in size. All of the cultural materials were observed in the A horizon or the Ap horizon (0 to 34 cm [0-13.4 in] below ground surface).

No structures were illustrated on the Sutton and Company (1879) atlas at this location; however, a farmstead was illustrated on the 1905 Arlington, Ohio USGS 15-minute topographic quadrangle, and on the 1961 Dunkirk USGS 7.5-minute topographic quadrangle approximately 600 ft (182.9 m) west of HR308. Four structures were also observed on the 1994 aerial photograph approximately 350 ft (106.7 m) west of Site HR308. The structures were no longer observed on the 2004 or 2015 aerial photographs. Based on a review of the historic documents and the types of artifacts identified, the farmstead likely dates from the early 1900's to the 2000s. However, it is unclear if the artifacts observed represent recent demolition activities at the former farmstead, or activities associated with the operation of the farmstead prior to the demolition (ca. 1900 to 1994).

No intact subsurface features were identified during shovel testing. However, based on the historic documentation, there remains potential for intact subsurface features, such as additional foundations and cisterns, to exist in the area. Hog Creek has committed to avoiding this site. Therefore, no further investigations of this site were performed.

6.3.2 Site HR309

Site HR309 is a Euro-American artifact scatter identified during the pedestrian survey of the service road west of Turbine 18 (Appendix A, Figures 3 and 4-C4; Appendix C, Photographs 10 through 12). The site was located on a slight rise in an agricultural field with 50 to 75 percent visibility. The artifact scatter consists of a dense assemblage of whiteware, stoneware, bottle and plate glass, metal fragments, a small horseshoe, clinker, charcoal, brick fragments, mortar fragments, and plastic. One diagnostic artifact was identified at Site HR309. A Thatcher Glass Manufacturing Company maker's mark was observed on a bottle base which indicates a manufacturing date between 1923 and the early 1950's (Whitten 2016). One blue ceramic fragment was decorated with a strong v-shaped pattern suggestive of art deco designs, possibly dating from the 1920s to the 1940s. Based on the diagnostic bottle base found at HR309, the artifacts found at the site likely date from between 1920 and 1950.

Seventeen shovel tests were placed within the site boundaries established during the pedestrian survey. Ten shovel tests were positive and included additional ceramic fragments, glass shards, clinker, coal, and metal fragments. The majority of cultural materials were observed in the plowzone (0 to 30 cm [0-11.8 in] below ground surface) and appeared to be randomly scattered and fragmentary. However, some brick and mortar fragments were observed to a depth of 40 cm (15.8 in) below the ground surface and below the plowzone, in a matrix that appeared to be fill material. This fill material may represent a former foundation that was filled in during the demolition of a farmstead.

A structure was illustrated approximately 1,000 ft (304.8 m) north of Site HR309 on the Sutton and Company (1879) atlas and the 1905 Arlington, Ohio USGS 15-minute topographic map. Additionally, a farmstead was illustrated immediately adjacent to Site HR309 on the 1961 Dunkirk, Ohio USGS 7.5-minute topographic quadrangle. No structures were observed in the immediate vicinity of Site HR309 in the 1994, 2004, or 2015 aerial photographs; however, a lighter patch of soil can be seen in the center of the artifact scatter in the 1994 aerial photograph. This may represent demolition activities from the previous decade (1980s) or that agricultural activities are bringing fill material located in former foundations to the surface. Based on a review of historic documents and the types of artifacts identified, the farmstead and Site HR309 likely dates from the early to the middle 20th century.

Based on the historic documentation, there remains potential for intact subsurface features, such as foundations and cisterns, to exist in the area. Hog Creek has committed to avoiding this site. Therefore, no further investigations of this site were performed.

6.3.3 Site HR310

Site HR310 is a Euro-American artifact scatter identified during the pedestrian survey of the collection line north of Turbine 21 (Appendix A, Figures 3 and Figure 4-C5; Appendix C, Photographs 13 and 14). The site was located in a cultivated field with 50 to 75 percent visibility and consists of a dense scatter of bottle glass, a cobalt glass vial, a glass handle, stoneware, whiteware, green, blue, and yellow glazed ceramics, metal fragments, a horseshoe, charcoal, burnt bone, concrete, and rubber fragments. Two diagnostic artifacts were identified within the artifact scatter. The first was a Vicks VapoRub bottle base which was manufactured between 1930 and 1970 (Whitten 2016). Additionally, a bottle base with the Owens-Illinois Glass Companies manufacture mark was also identified. This maker's mark was used by Owen-Illinois Glass between 1929 and 1966 (Lockhart and Hoenig 2015). Based on the dates of these artifacts, the remaining non-diagnostic items likely from the early- to the mid-20th century.

No structures were illustrated at this location on the Sutton and Company (1879) atlas or the 1905 Arlington, Ohio USGS 15-minute topographic map. A farmstead was illustrated approximately 1,500 ft (457.2 m) north of HR310 on the 1961 Dunkirk, Ohio USGS 7.5-minute topographic quadrangle. No structures were observed in the immediate vicinity of Site HR310 in the 1994, 2004, or 2015 aerial photographs. A farmstead was observed approximately 1,500 ft (457.2 m) north of Site HR310 in the 1994 aerial photograph. The farmstead was no longer observed in the 2004 and 2015 aerial photographs.

Based on the historical documentation in conjunction with the artifacts observed in the field, the site is most likely an artifact scatter associated with a random episodic dumping during the mid-20th century and not associated with a buried feature. Nevertheless, Hog Creek has committed to avoiding this site and no further investigations were performed.

7.0 RECOMMENDATIONS

Tetra Tech recommended avoidance of all cultural resources that are potentially eligible for listing on the NRHP, sites deemed culturally sensitive, or sites that have not been evaluated for eligibility following the guidelines outlined by the SHPO. For this investigation, Hog Creek has committed to avoiding effects to archaeological resources that have not been evaluated for eligibility following the guidelines outlined by the SHPO. If Project plans change and the resources cannot be avoided, then Tetra Tech recommends additional investigation that would constitute formal evaluation of site significance.

7.1 EURO-AMERICAN SITES

Hog Creek has redesigned Project facilities to avoid sites HR308, HR309, and HR310, which is reflected in the latest Project layout dated September 30, 2016. Tetra Tech has reviewed the September 30, 2016 layout and confirms that the Project facilities have been redesigned beyond the known extents of sites HR308, HR309, and HR310, and that the sites are no longer located in the Hog Creek Construction Easement. Since these sites will be avoided, no formal evaluation of significance has been conducted. It is Tetra Tech's opinion that the sites should be considered undetermined for inclusion to the National Register of Historic Places at this time.

7.2 DETERMINATIONS

Because sites HR308, HR309, and HR310 are no longer located in Hog Creek Construction Easement, Tetra Tech recommends, per Ohio Administrative Code 4906-04-06(D), that no significant archaeological sites will be affected by the Project.

7.3 ADDITIONAL FIELD ACTIVITIES: PRE-CONSTRUCTION AND DURING CONSTRUCTION

Site avoidance is recommended for all Project activities including construction, as well as preconstruction activities such as surveying and staking the proposed layout. Tetra Tech recommends delineating the site avoidance buffers with high-visibility snow fencing prior to any ground-disturbing activities. Such fencing will reduce the potential for inadvertent disturbance to the resources. An Archaeological Avoidance Plan has been developed to accommodate any archaeological materials that may be unearthed during the construction of the proposed facilities (Appendix B).

If areas beyond the Survey Corridor are to be used during construction, then Tetra Tech recommends that these areas be reevaluated for the potential to contain archaeological materials and surveyed if deemed appropriate. The results of any investigation should be presented in an addendum report for SHPO review.

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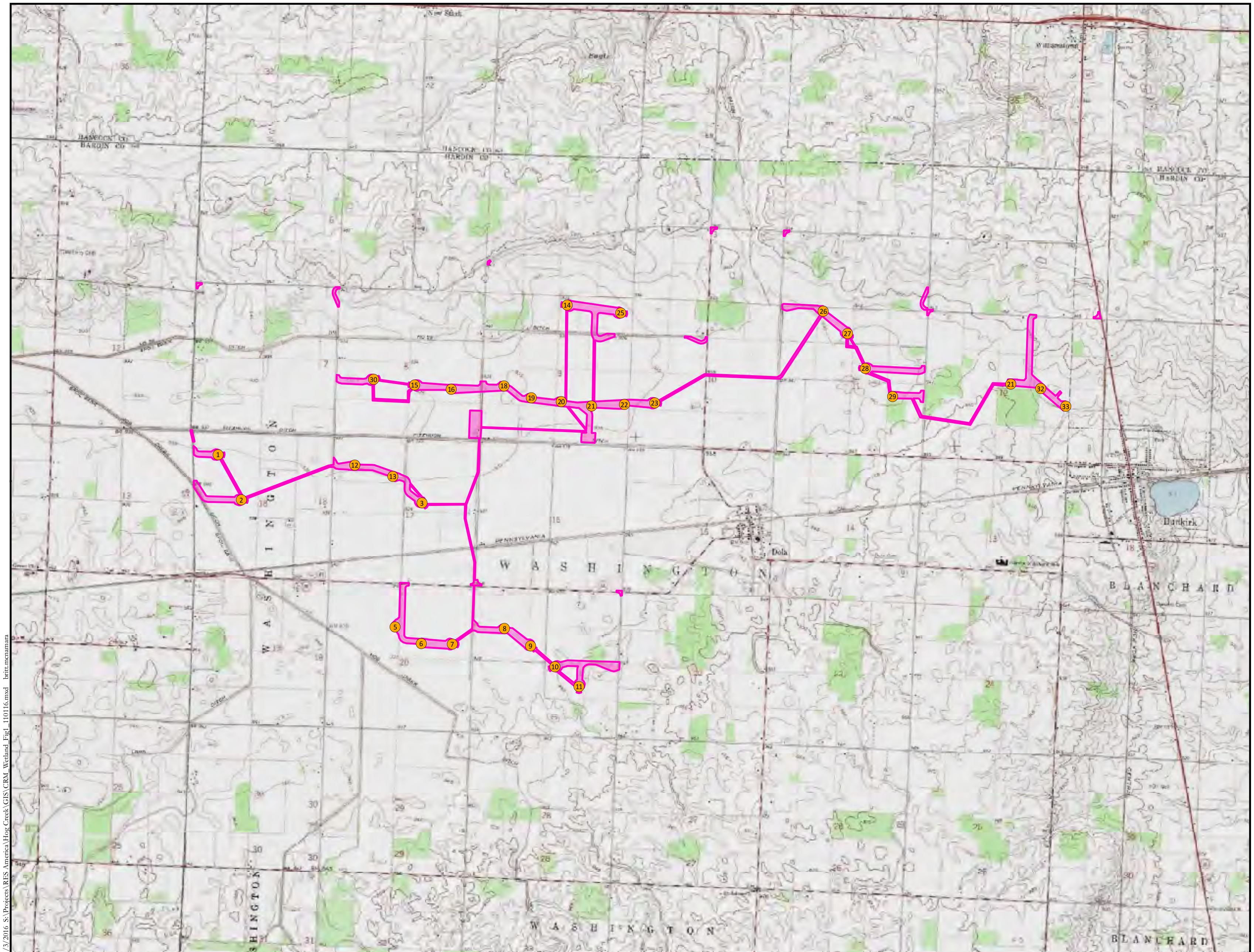
APPENDIX A – FIGURES



Proposed Project Facilities

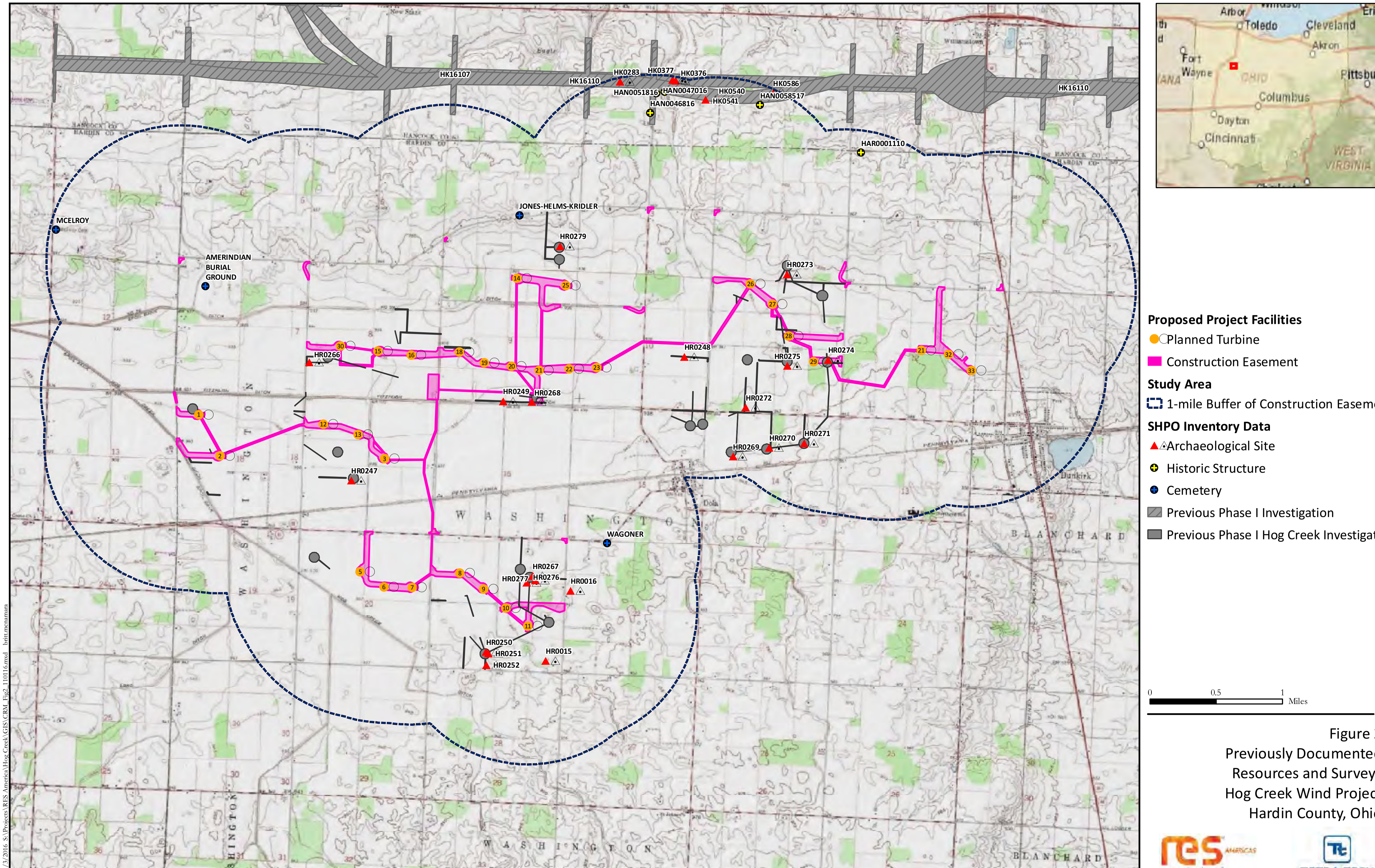
- Planned Turbine
- Construction Easement

0 0.5 1 Miles

Figure 1
Project Location
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:32k - Ada and Dunkirk, OH; Project data provided by RES America - previous survey corridor (07/10/12), survey corridor (06/21/16).

11/3/2016 S:\Projects\RES America\Hog Creek\GIS\CRM_Wetland_Fig1_110116.mxd britt.mcnamara



Proposed Project Facilities

Planned Turbine

Construction Easement

Study Area

1-mile Buffer of Construction Easement

SHPO Inventory Data

Archaeological Site

Historic Structure

Cemetery

Previous Phase I Investigation

Previous Phase I Hog Creek Investigation

Figure 2
Previously Documented
Resources and Surveys
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), SHPO data acquired on 11/1/2016.

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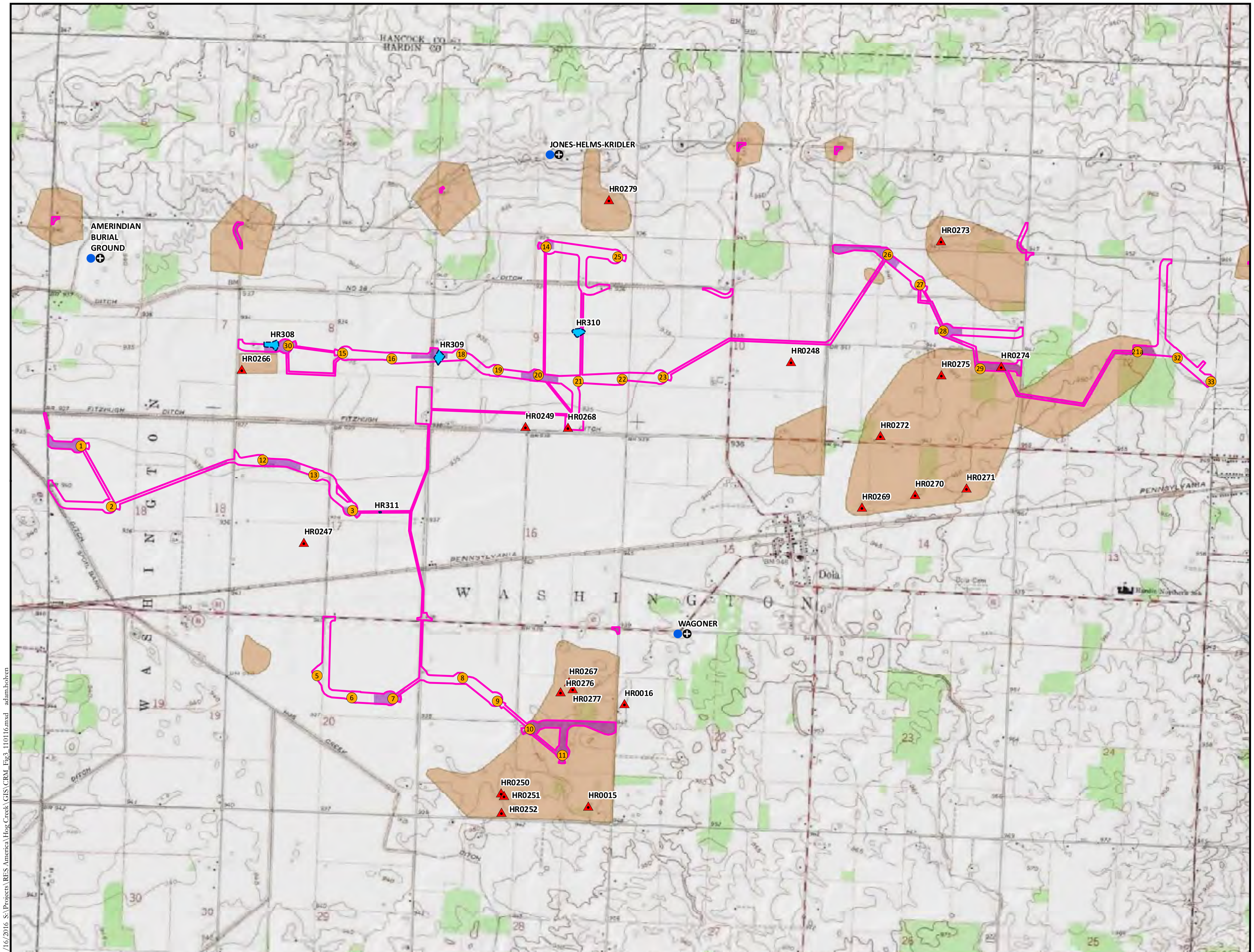

Proposed Project Facilities

- Planned Turbine
- Construction Easement

Survey Results

- High Sensitivity Area*
- Survey Corridor - 100% Pedestrian Survey and Shovel Testing in Areas with less than 50% Surface Visibility
- Newly Documented Site

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 0.5 1 Miles

Figure 3
Surveyed Areas and
Newly Documented Resources
Hog Creek Wind Project
Hardin County, Ohio

RES AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), SHPO data acquired on 11/1/2016.

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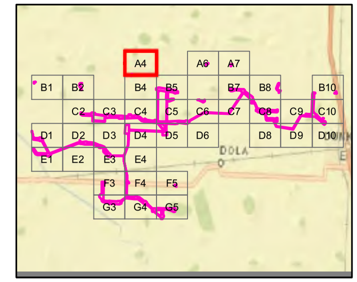

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

N

Figure 4 - A4
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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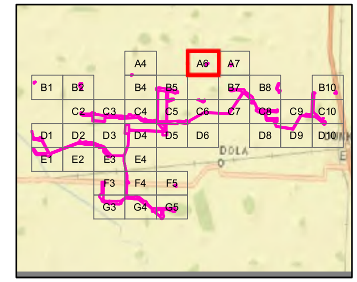

Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - A6
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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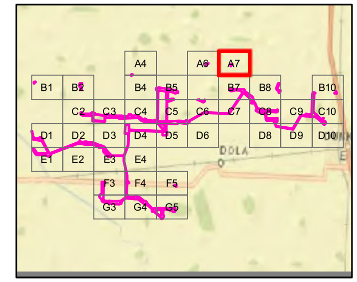

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

N

Figure 4 - A7
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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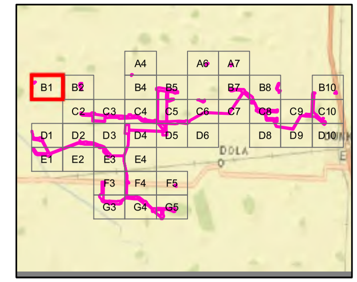

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - B1
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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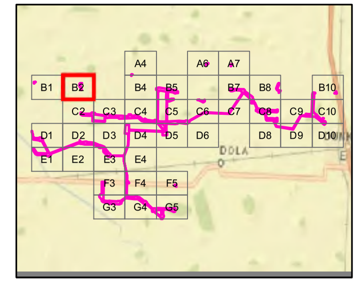

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - B2
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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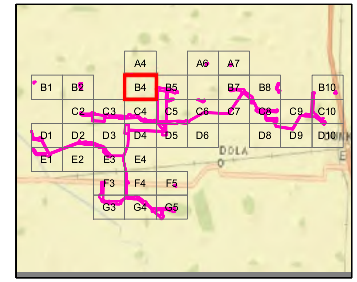

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - B4
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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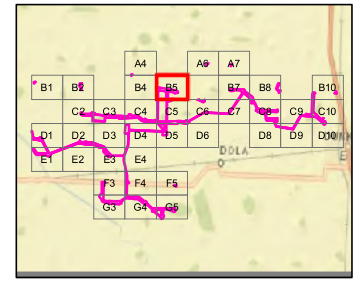

Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - B5
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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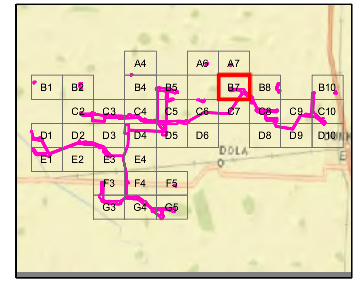

Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - B7
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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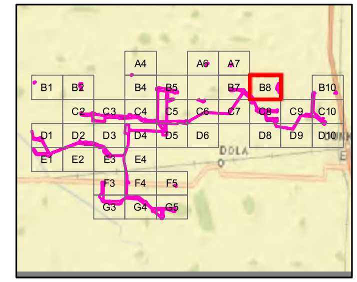

Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - B8
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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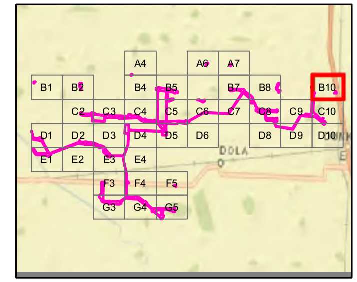

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - B10
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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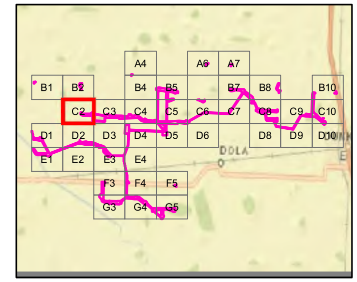

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - C2
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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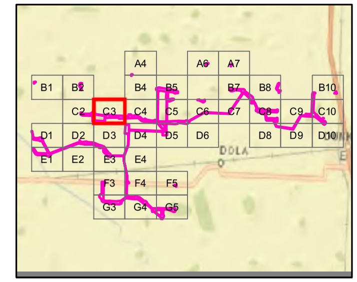


Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

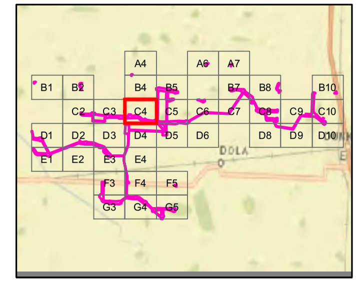
*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - C3
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

11/16/2016 S:\Projects\RES America\Hog Creek\GIS\CRM_Fig4_110116.mxd adam.holven



Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

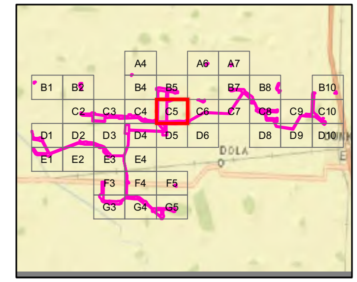
*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - C4
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

11/16/2016 S:\Projects\RES America\Hog Creek\GIS\CRM_Fig4_110116.mxd adam.holven

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.



Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

N

Figure 4 - C5
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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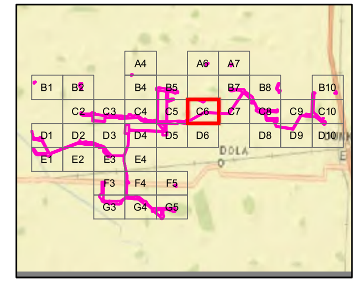

Proposed Project Facilities
Planned Turbine
Planned Service Road
Planed Collection Line
Planned Crane Path
O&M Building/Substation
Laydown Area
Construction Easement

Survey Results
High Sensitivity Area*

Pedestrian Survey Results
Survey Corridor: Surface Visibility >50%
Survey Corridor: Surface Visibility <50%
Newly Documented Site

Shovel Test Results
Negative
Positive

SHPO Inventory Data
Archaeological Site
Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - C6
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change
TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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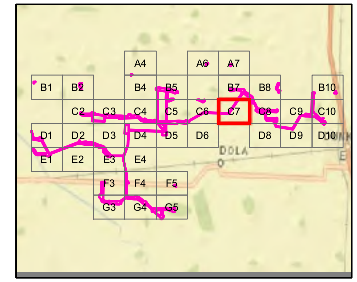

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - C7
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

11/16/2016 S:\Projects\RES America\Hog Creek\GIS\CRM_Fig4_110116.mxd adam.holven

Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - C8
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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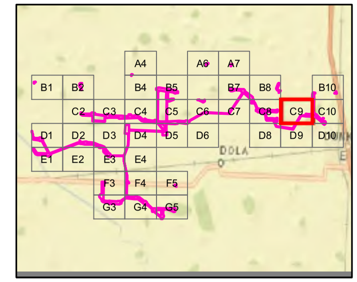

Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - C9
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

res AMERICAS powering change

TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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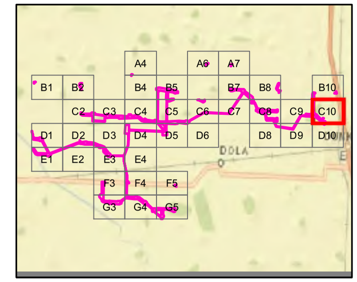

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - C10
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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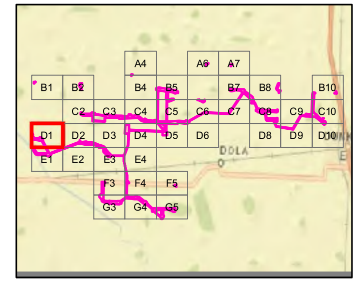

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - D1
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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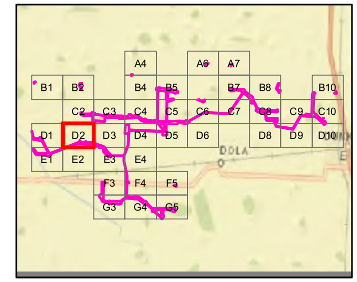

Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

N

Figure 4 - D2
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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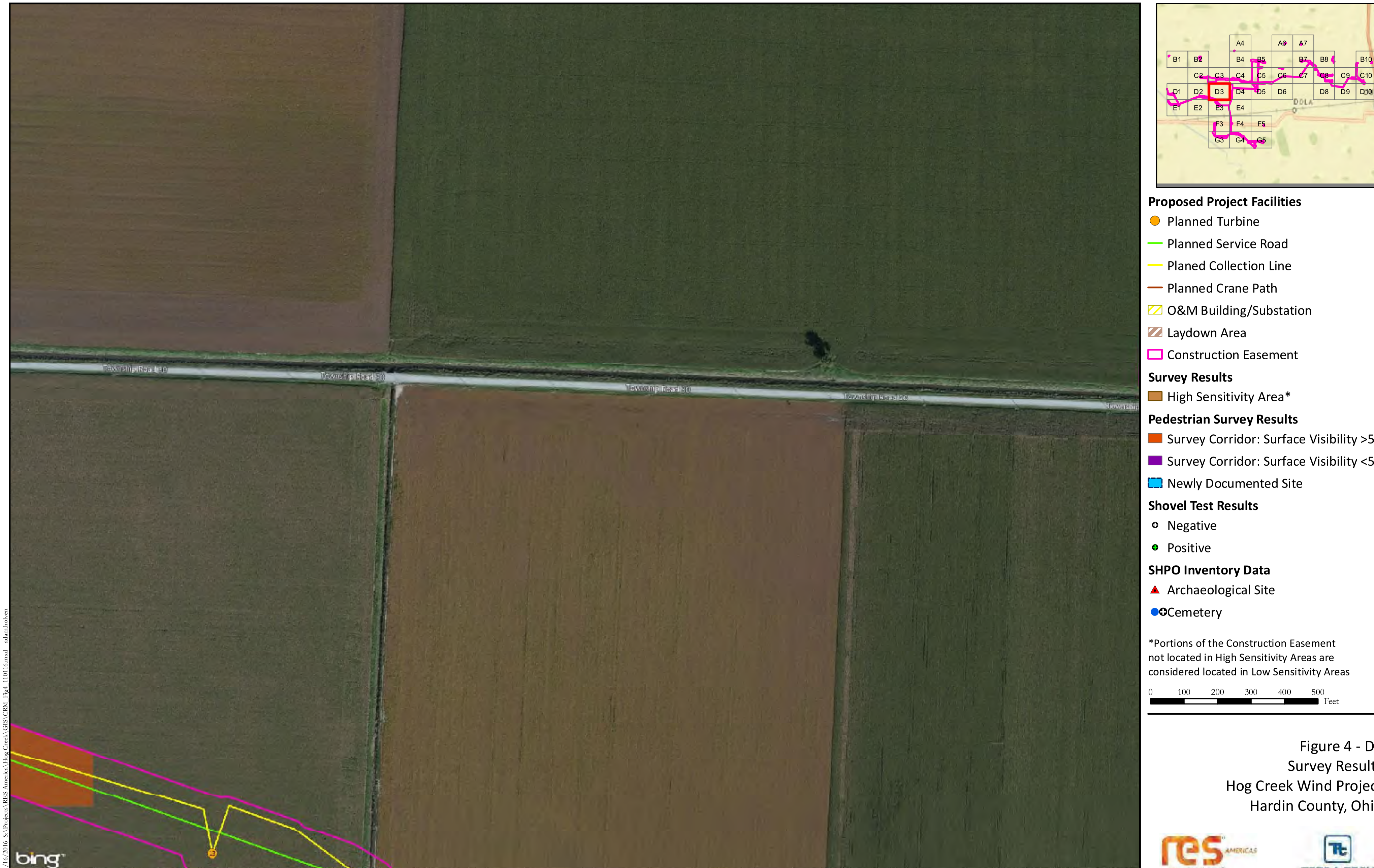

Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - D3
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

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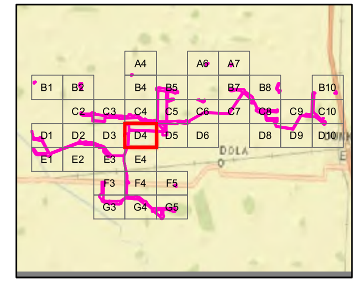
TETRA TECH

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.



Proposed Project Facilities

- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results

- High Sensitivity Area*

Pedestrian Survey Results

- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results

- Negative
- Positive

SHPO Inventory Data

- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - D4
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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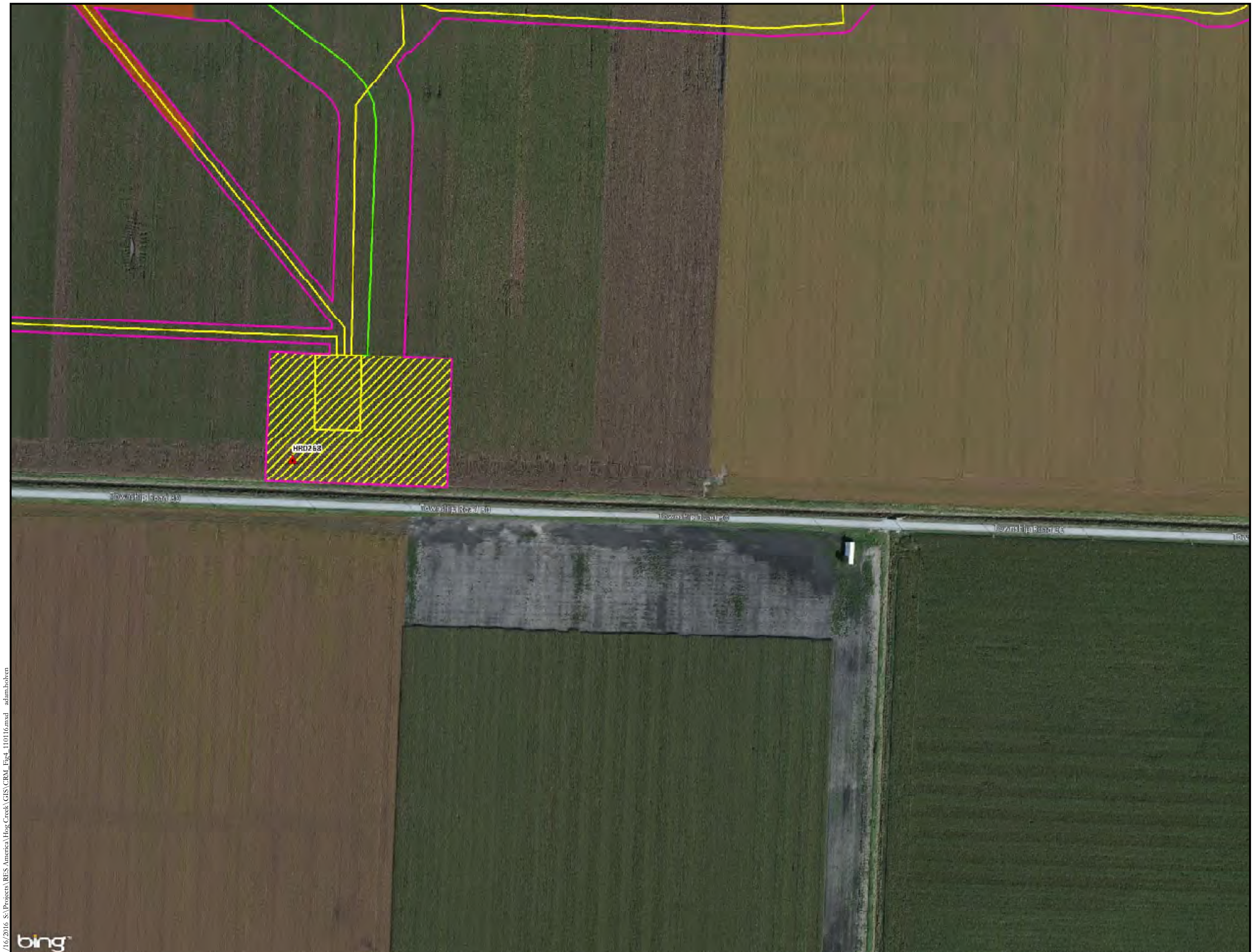

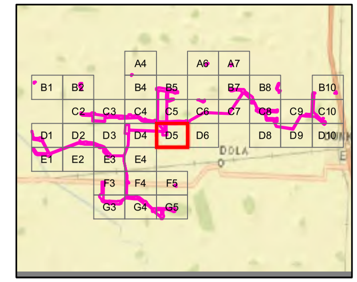

Proposed Project Facilities
- Planned Turbine
- Planned Service Road
- Planed Collection Line
- Planned Crane Path
- O&M Building/Substation
- Laydown Area
- Construction Easement

Survey Results
- High Sensitivity Area*

Pedestrian Survey Results
- Survey Corridor: Surface Visibility >50%
- Survey Corridor: Surface Visibility <50%
- Newly Documented Site

Shovel Test Results
- Negative
- Positive

SHPO Inventory Data
- Archaeological Site
- Cemetery

*Portions of the Construction Easement not located in High Sensitivity Areas are considered located in Low Sensitivity Areas

0 100 200 300 400 500 Feet

Figure 4 - D5
Survey Results
Hog Creek Wind Project
Hardin County, Ohio

Source: Map adapted from ArcGIS Map Server USA Topos 1:24k - Ada and Dunkirk, OH; Project data provided by RES America - Survey Corridor (06/21/16), Turbine (6/13/16), Service Road (6/21/16), Collection Line (6/21/16), Crane Path (6/21/16). SHPO data acquired on 11/1/2016.

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