Clearview Solar I, LLC

Clearview Solar

Exhibit S

Phase 1A Cultural Resources Survey

Case No. 20-1362-EL-BGN

Phase IA Cultural Resources Survey

Clearview Solar Project

Adams Township, Champaign County, Ohio

Prepared for:

Clearview Solar I, LLC
1105 Navasota Street
Austin, Texas 78702
www.clearviewsolarproject.com

Prepared by:

Environmental Design & Research,
Landscape Architecture, Engineering, & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
www.edrdpc.com

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MANAGEMENT SUMMARY

Involved Agencies:	Ohio Power Siting Board (OPSB) Ohio Historic Preservation Office (OHPO)
Phase of Survey:	Phase IA Cultural Resources Survey
Location Information:	Adams Township, Champaign County
Survey Area:	
Project Description:	A utility-scale solar project consisting of ground-mounted photovoltaic panels and associated infrastructure.
Project Area:	An approximately 1,196-acre area that will host all components of the Project.
Cultural Resources Study Area:	The area within two miles of the Project Area
Area of Potential Effects (APE):	The APE for Direct Effects is the 1,075-acre area representing the maximum possible area of soil disturbance associated with the Project. The APE for Indirect (Visual) Effects represents portions of the Cultural Resources Study Area where there is potential Project visibility.
USGS 7.5-Minute Quadrangle Maps:	*Port Jefferson, Ohio* and *De Graff, Ohio*
Archaeology Resources Overview:	There are no Ohio Archaeological Inventory sites within the APE for Direct Effects.
Historic Resources Overview:	The Cultural Resources Study Area includes 46 properties listed on the Ohio Historic Inventor (OHI), 6 cemeteries designated by the Ohio Genealogical Society (OGS), and no properties listed on or eligible for listing on the National Register of Historic Places (NRHP). No resources are located within the Project Area.
Report Authors:	Susan Lawson, Douglas Pippin, Ph.D., RPA, and Patrick Heaton, RPA
Date of Report:	September 2020

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1.0 INTRODUCTION

1.1 Purpose and Goals of the Investigation

Clearview Solar I, LLC (the Applicant) is proposing to construct the Clearview Solar Project, a photovoltaic (PV) solar project to be located in in Adams Township, Champaign County (the Project). The information and recommendations included in this report are intended to assist the Ohio State Historic Preservation Office (OHPO) with its review of the Project for the Ohio Power Siting Board (OPSB). Specifically, the Phase IA Cultural Resources Survey has been prepared to satisfy the below (bolded) portions of Section 4906-04-08(D) of the Ohio Administrative Code:

The applicant shall provide information on cultural and archaeological resources.
(1) Landmark mapping. The applicant shall indicate, on a map of at least 1:24,000 scale, any formally adopted land and water recreation areas, recreation trials, scenic rivers, scenic routes or byways, and registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance within ten miles of the project area. Landmarks to be considered for purposes of paragraph (D) of this rule are those districts, sites, buildings, structures, and objects that are recognized by, registered with, or identified as eligible for registration by the national registry of natural landmarks, the state historical preservation office, or the Ohio department of natural resources.
(2) Impacts on landmarks. The applicant shall provide an evaluation of the impact of the proposed facility on the preservation and continued meaningfulness of these landmarks and describe plans to avoid or mitigate any adverse impact.

This report maps and documents "registered landmarks of historic, religious, archeological…or other cultural significance," i.e., those "districts, sites, buildings, structures, and objects that are recognized by, registered with, or identified as eligible for registration by…the state historical preservation office" located within the Project Area and surrounding two-mile radius Cultural Resources Study Area that could potentially be affected by the construction and/or operation of the Project. (As explained below, the report proposes to use this two-mile Cultural Resources Study Area in lieu of the ten-mile area referenced in the OPSB rule.) Please note that the requirements of Section 4906-04-08(D)(1) and (2) addressing "formally adopted land and water recreation areas, recreation trials, scenic rivers, scenic routes or byways" and "registered landmarks of…scenic [and] natural…significance" are not addressed in this report.

This report also proposes research designs for subsequent archaeological and historic resources field surveys for the Project. The archaeological survey research design described herein has been prepared by a Registered Professional Archaeologist (RPA) who meets the Secretary of the Interior's Standards for Archaeology (36 C.F.R. Part 61). The historic resources survey design described herein has been prepared by a qualified architectural historian who meets the U.S. Secretary of Interior's Standards for Historic Preservation (36 C.F.R. Part 61). All cultural resources services

provided by EDR for the Project will be conducted in accordance with applicable portions of the OHPO *Archaeology Guidelines* (OHPO,1994) and *Guidelines for Conducting History/Architecture Surveys in Ohio* (OHPO, 2014).

1.2 Project Location and Description

The Project is a proposed solar electric generation plant to be located in Adams Township, Champaign County, Ohio (See Figure 1). The Project will consist of the construction, operation and decommissioning of solar panels mounted on racking, inverters that will convert direct current (DC) electricity to alternating current (AC) electricity, including medium-voltage transformers to increase electric voltage to 34.5kV, a network of racking-mounted and buried cables to collect the electricity, a substation that will increase the voltage to 138kV, a short (likely less than 100-foot long), above-ground transmission line, entrances from public roads, gravel and grassed roads within the facility, instruments that measure solar energy and other meteorological variables, a Supervisory Control and Data Acquisition (SCADA) structure, perimeter fencing, and selective perimeter landscaping. The Project will include and deliver power to a new substation that will be constructed by The Dayton Power and Light Company adjacent to its existing East Sidney-to-Quincy 138kV transmission line.

The Project will occupy up to 1,075 acres of private land within a larger Project Area of approximately 1,196 acres (see Figure 2). Following construction, all above-ground equipment will be surrounded by fencing and selected sections of the perimeter outside the fence will feature vegetative landscaping.

The following terms are used throughout this document to describe the proposed action:

Project:	Collectively refers to all components of the Project and associated infrastructure (such as solar panels, inverters, collection lines, substations, and other equipment) in Adams Township, Champaign County, Ohio. .
Project Area:	An approximately 1,196-acre area of land that will host the Project.
Cultural Resources Study Area:	The area within two miles of the Project Area, which is the appropriate study area for indirect, or visual, effects on cultural resources.
APE for Direct Effects:	The Area of Potential Effects (APE) for Direct Effects is the 1,075-acre buildable area within the Project Area that represents the maximum area of potential soil disturbance associated with the Project.
APE for Indirect Effects:	The APE for Indirect (Visual) Effects on historic resources represents portions of the Cultural Resources Study Area where there is potential Project visibility.

The Project Area is rural and set in an area of generally low topographic relief. The majority of the landscape within the Cultural Resources Study Area is that of flat, open agricultural fields. These fields are bisected by long, straight

rural transportation routes that form blocks of approximately one square-mile each, which are further bisected by smaller gravel roads. Where not interrupted by woodlots and structures, the relatively level topography within the Cultural Resources Study Area allows for clear views to any nearby historic resources. Views to farmhouses and agricultural buildings within large scale farming landscapes are dependent on their distance from the public rights-of-way and intervening structures and vegetation. Developed features in the Project Area include electric transmission lines, communication towers, water towers, public roads, single family homes and agricultural buildings.

1.3 Project Components

Relative to conventional energy generation methods of a similar scale, solar facilities result in minimal impacts to the environment. Impacts from the construction and operation of solar generation are largely the result of the fact that utility-scale solar energy facilities require large, contiguous areas for the collection and distribution of energy. The Applicant is committed to minimizing impacts to cultural and natural resources. The Project is sited in a rural, agricultural region in part to minimize the need for land clearing and typical construction processes such as surface grading and soil compaction.

The Project will feature minimally-intrusive solar panels mounting systems to minimize soil disturbance so that the land can return to its current agricultural use following the decommissioning of the Project (see Figure 3). The solar panel racking will consist of piles that will be driven, or screws that will be rotated, into the ground in long rows. Only some minimal grading may be required in certain locations, although in most cases, the rows will follow the natural topography. Following construction, any disturbed areas will be restored with topsoil, and a cover of native grass species will be established underneath and around the solar panels. This section includes a description of the components of the proposed Project and the proposed construction/installation methods associated with each component. These methods will minimize potential direct impacts to archaeological resources within the Project Area.

The Project will include the following types of components:

Solar Panels and Racking

The Project will generate electricity with conventional solar panels, which will be affixed to metal racking. The racking will include piles that will be driven, or screws that will be rotated, into the ground in long rows. The rows generally will follow the existing topography of the Project Area, although some rough grading may occur. Rows will be grouped in large clusters, referred to as solar fields, each of which will be separately fenced. Solar panels will not exceed 15 feet in height above grade.

Inverters and Collection Lines

Within each solar field, a network of electric lines and associated communication lines, commonly referred to as collection lines, will collect the electric power from different groups of rows and transmit it to a central location. Solar panels will be grouped into series of circuits that are routed, through cable trays on the racking, to combiner boxes. Power from one or more of the combiner boxes will then be transmitted to a DC-to-AC inverter. The equipment comprising each inverter will be mounted on a pre-fabricated foundation such as a metal skid, gravel pad or concrete block. Each Inverter will deliver AC power to a single, fenced, substation dedicated to the Project (Project Substation). The Inverters will be connected to the Project Substation through a second network of collection lines. some of which will be outside the fences. All portions of the collection lines outside of the fences will be buried at least 36 inches below grade.

Project Substation, Utility Substation and Gen-Tie

The Project Substation will be located adjacent to an existing Dayton Power and Light 138 kV transmission line. The equipment for the Project Substation will be constructed on a concrete foundation and will be of a size and configuration similar to numerous existing substations in the region. A fence will be installed around the perimeter.

A short above-ground transmission line, likely less than 100 feet long (Gen-Tie), will connect the Project Substation to a new utility substation (Utility Substation) to be constructed by Dayton Power & Light along its existing East Sidney-to-Quincy 138kV transmission line. The Utility Substation will be constructed on a concrete foundation and will be of a size and configuration similar to numerous existing substations in the region. A self-supporting, steel structure, commonly referred to as a dead-end structure, will mark the connection between the Gen-tie and the Utility Substation.

The various components comprising the Project Substation and Utility Substation are expected to vary in height, but generally will be up to 15 feet. With the exception of lightning masts, the tallest piece of equipment likely will be the dead-end structure, which is expected to be in the range of 20-25 feet. Lightning masts may be 35 to 45 feet in height but will be very narrow and difficult to discern from a distance.

Roads

The Project will include a number of unpaved roads comprised of aggregate material and/or grass used for accessing each solar field and equipment within them. Short driveways will connect the roads to public roads at one or more points for each solar field. Roads will be used for the operations and maintenance of equipment in addition to providing sufficient access for emergency response. Roads will only be as long and wide as necessary to accommodate construction and operational activities.

Laydown Yards

Laydown yards will be used for the temporary storage and staging of components and construction equipment, as well as used to provide parking for construction workers. Laydown yards will be constructed by adding aggregate to the existing ground surface with minimal, if any, modification. The laydown yards will be restored upon completion of construction activities but may be used again during decommissioning.

Pyranometers

The Project will include a number of pyranometers, which will consist of various meteorological instruments and associated communications equipment. The pyranometers will be installed on a pre-cast concrete block foundation, gravel pad or directly on the ground, and will be less than 15-feet in height. Any pyranometer not located within a solar field will be separately fenced and gated.

SCADA Structure

The SCADA structure will be small structure on a poured or pre-cast concrete foundation that houses supervisory control and data acquisition equipment. It will contain computers and communications devices to assist the Applicant in the operation and management of the facility. It will have electrical service, but no water and sewer, and will not be occupied.

2.0 PROJECT BACKGROUND

Background research for the proposed Project was conducted according to the methodology described below, using numerous source materials and datasets. The information described below was used to develop the archaeological and historic resources survey research designs presented in Sections 3 & 4, below, respectively.

2.1 Background Research Methods

EDR reviewed numerous sources for information relating to archaeological and historic resources located within the Cultural Resources Study Area. Archives and repositories consulted during EDR's research for the Project included the OHPO online Geographic Information Systems (GIS) mapping system (Ohio History Connection, 2020a), the David Rumsey map collection (Rumsey, 2020), topoView (USGS, 2020) and EDR's in-house collection of historic and archaeological reference materials. Background research included the following records available from the Ohio State Historic Preservation Office:

National Register of Historic Places (NRHP)
NRHP Determination of Eligibility (DOE)
National Historic Landmarks (NHL)
Ohio Historic Inventory (OHI)
Ohio Department of Transportation (ODOT) Historic Bridge Inventory
Ohio Archaeological Inventory (OAI)
Ohio Genealogical Society (OGS) cemetery files
Mills *Archaeological Atlas of Ohio* (1914)
OHPO previous cultural resources surveys

OHPO Previously Reported Cultural Resources
Previously reported cultural resources included in the OHPO online GIS mapping system (OHC, 2020a) are described below and depicted in Figure 4.

National Register of Historic Places (NRHP)
The review of the OHPO online GIS mapping system indicates that there are no NRHP-listed properties within the Project Area or the Cultural Resources Study Area.

NRHP Determination of Eligibility (DOE)

The review of the OHPO online GIS mapping system indicates there are no resources previously determined eligible for the NRHP within the Project Area or the Cultural Resources Study Area.

National Historic Landmarks (NHL)

No designated NHLs are located within the Project Area or the Cultural Resources Study Area (NPS, 2020).

Ohio Historic Inventory (OHI)

The review of the OHPO online GIS mapping system indicates there are no OHI-designated resources located within the Project Area. Forty-six OHI-designated properties have been previously recorded within the Cultural Resources Study Area (see Appendix A).

Ohio Department of Transportation (ODOT) Historic Bridge Inventory

No historic bridges listed on the ODOT Historic Bridge Inventory are located within the Project Area or the Cultural Resources Study Area (ODOT, 2020).

Ohio Archaeological Inventory (OAI)

The review of the OHPO online GIS mapping system indicates there are no OAI sites within the Project Area. Six OAI properties have been recorded within the Cultural Resources Study Area (see Table 1). These sites are all located greater than 1.7 miles from the Project Area.

Table 1. Ohio Archaeological Inventory Sites within 2 Miles of the Project Area

OAI ID	Site Name	Period	Site Type	Distance from Project Area (miles)
SH0021	Archer #1	Historic	Uncategorized	1.7
SH0022	Archer #2	Prehistoric	Uncategorized	1.7
SH0023	Archer #3	Prehistoric	Uncategorized	1.9
LO0024	Unnamed	Prehistoric	Village Site	1.9
LO0107	The Allinger Mill Site	Historic	Grist Mill	1.9
LO0106	Reese Site	Prehistoric and Historic	Uncategorized	2.0

Ohio Genealogical Society (OGS) Cemeteries

The review of the OHPO online GIS mapping system did not identify any OGS cemeteries within the Project Area. Six OGS cemeteries have been recorded within the Cultural Resources Study Area (see Table 2).

Table 2: Ohio Genealogical Society Cemeteries within 2 miles of the Project Area

OGS ID	Cemetery Name	Township	County	Distance from Project Area (miles)
6871	Cost Cemetery	Miami	Logan	1.0

OGS ID	Cemetery Name	Township	County	Distance from Project Area (miles)
1479	Johnson Cemetery	Adams	Champaign	1.1
11195	Sturm-Sargent Farm Cemetery	Green	Shelby	1.9
11226	Sturms Cemetery	Perry	Shelby	1.7
1483	Wilkinson Cemetery	Adams	Champaign	1.8
1480	Neal Cemetery	Adams	Champaign	1.8

Previous Cultural Resources Surveys

No previous cultural resource surveys have been conducted within the Project Area. One cultural resource survey has been completed within the Cultural Resources Study Area (see Figure 4 and Table 3).

Table 3: Previous Cultural Resources Survey within 2 miles of the Project Area

National Archeological Database (NADB) ID	Title	Author	Year	Distance from Project Area (miles)
15617	An Archaeological Assessment of the SHE-29-23.47 Road Improvement Project in Green Township, Shelby County, Ohio.	Butterworth, Kolleen R.	1989	1.7

Mills Archaeological Atlas of Ohio (1914)

None of the sites recorded in Mills' *Archaeological Atlas of Ohio* are located in the Project Area. Two pre-contact Native American sites are noted at the northern edge of the Cultural Resources Study Area (see Figure 5; Mills 1914:75). Information from the Mills atlas is discussed in greater detail in Section 2.3, below.

2.2 Pre-Contact Context for the Cultural Resources Study Area

The *Archaeological Atlas of Ohio* (Mills,1914) and information retrieved from the OHPO online database indicate that numerous pre-contact Native American earthworks (e.g.: burial mounds and enclosures) and interments are found in southwestern Ohio. Earthwork sites are often clustered together in large numbers and usually located in close proximity to streams. Mills (1914) notes that the Great and Little Miami Rivers, which flow through southwestern Ohio with the latter just north of the Cultural Resources Study Area, "were well adapted for the abode of prehistoric man and here we find his principal monuments." The majority of mounds and graves are found along the Mad River and the source of the Great Miami River.

Mills notes that Champaign County has six mound earthworks, a village site, a cemetery, and burials. In Logan County, the Mills atlas describes 33 mounds and 25 burials. Nearby in Shelby County Mills describes a total of nine sites,

including two village sites, a cemetery and five burials. As noted above, there are no sites from the Mills atlas in the Project Area. Only two pre-contact Native American sites are located at the northern edge of the Cultural Resources Study Area (Mills, 1914; see Figure 5).

In his analysis of Late Paleoindian and Early Archaic settlement in Ohio, Chidester (2011) discusses an apparent boom in settlement in northwestern and north-central Ohio as the regional climate became warmer and drier during the Early Holocene. Settlement in Ohio during this period (approximately 11,500 to 7,750 years ago) clustered along the northern shore of Lake Erie and the lake plains of northwestern and north-central Ohio (Chidester, 2011; Stothers, 1996). To the south, Paleoindian sites are also found along the terraces of the Ohio River and adjacent saline springs, which proved attractive to Paleoindian peoples and game alike (Cunningham, 1973). Seeman and Prufer (1982) also note the presence of higher density Paleoindian artifacts along major rivers in central and southern Ohio, particularly the Ohio, Miami, Scioto, and upper Muskingum valleys. Sites along these major river valleys, which are theorized to have provided easily traversed routes for large game animals, are concentrated on elevated landforms such as terraces (Cunningham, 1973; Seeman and Prufer, 1982). More specifically, Paleoindian sites along river valleys tend to concentrate near confluences (Seeman and Prufer, 1982). In his overview of Ohio Archaic sites, Purtill (2009) notes that Late Archaic semi-annual to year-round settlements are located along major rivers, including the Ohio, particularly on terraces and near confluences with other streams.

In Late Archaic and Early Woodland settlement patterns in the western Lake Erie region, Stothers and Abel (1993) note that in the lower Maumee River and its tributaries clusters of sites are known at virtually every major rapid. This pattern reflects seasonal congregations to fish at these locations. They further note that large settlement sites in this area (which typically contain cemeteries) are always located close to the river, whereas smaller “nuclear family hunting and collecting camps” are located both along rivers and in upland settings (Stothers and Abel, 1993).

In his analysis of Late Woodland settlement in the Hocking River Valley of southeastern Ohio, Wakeman (2003) argued that foraging Late Woodland populations appeared to place higher value on areas suitable for resource extraction; whereas, Late Prehistoric farmers appeared to place higher value on extensive flat areas with well-drained soils suitable for growing crops. This is reflected in the archaeological record with Late Woodland sites evenly spread across the landscape on a variety of different landforms and with major Late Prehistoric sites concentrated along the bottoms of major river valleys.

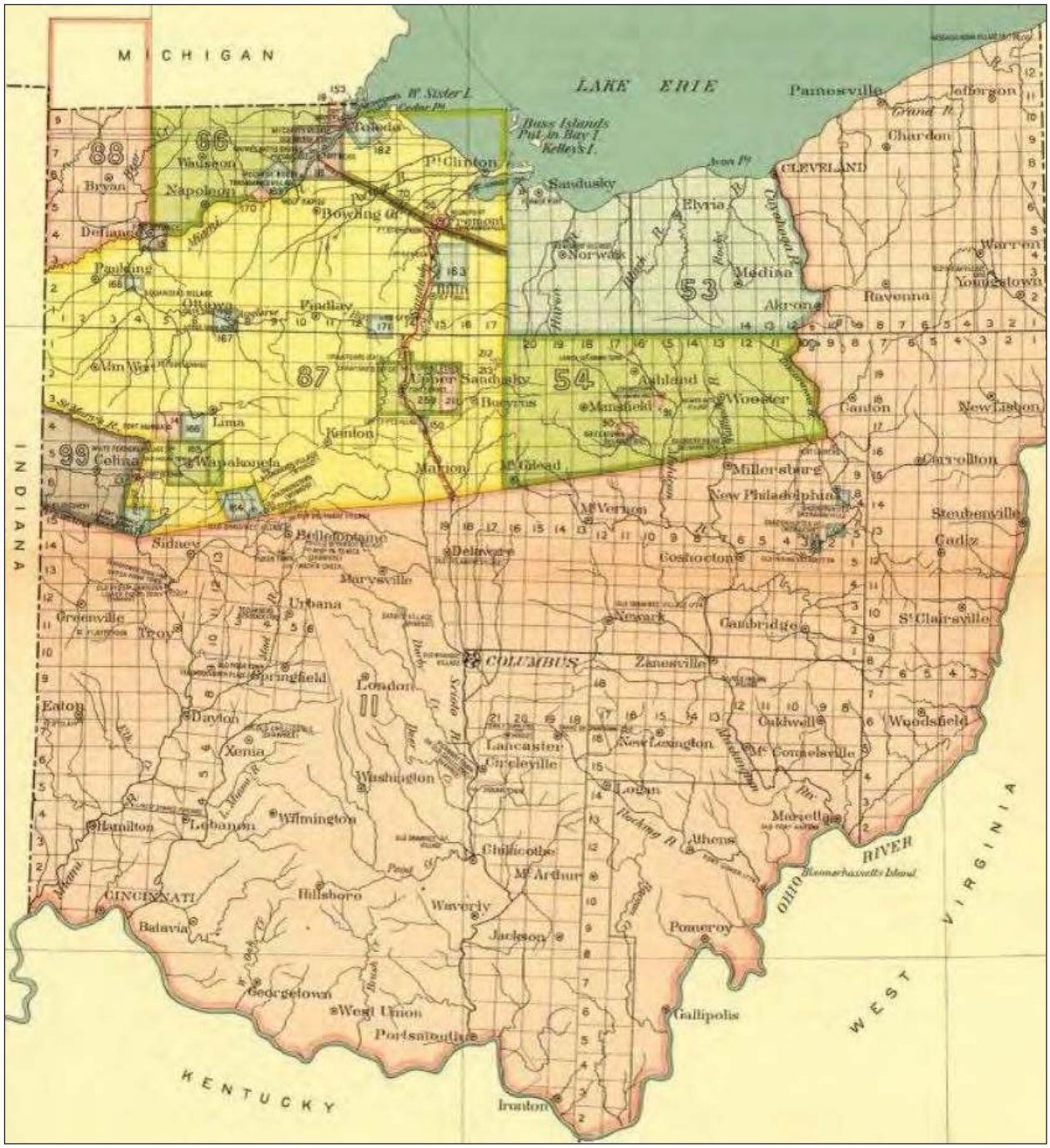
For settlement patterns in an eight-county study area in central Ohio, Nolan (2014) found a preference for well-drained soils across all pre-contact time periods. He also found that streams proved to be a better predictor of archaeological

site location than wetlands (i.e., sites were more consistently located in close proximity to streams than wetlands) across all time periods (Nolan, 2014).

2.3 Historic Context for the Cultural Resources Study Area

Sources reviewed included the *The History of Champaign County, Ohio, Containing A History of the County; its Cities, Towns, etc.; General and Local Statistics; Portraits of Early Settlers and Prominent Men; History of the Northwest Territory; History of Ohio; Map of Champaign County; Constitution of the United States, Miscellaneous Matters, etc., etc.* (Beers, 1881), and the *History of Champaign County, Ohio, Its People, Industries and Institutions with Biographical Sketches of Representative Citizens and Genealogical Records of Many of the Old Families, Volume I* (Middleton, 1917). In addition, documentary research included review of the OHPO OHI forms and NRHP nomination forms. Historic maps reviewed included the 1872 *Topographical Atlas of Ohio* (Gray, Lloyd, and Walling, 1872) and the 1899 *Ohio Indian Land Cessions in the United States* (Royce and Thomas, 1899).

In the mid-eighteenth-century, Virginia, New York, Massachusetts, and Connecticut each laid claim to sections of the Northwest Territory based on seventeenth- and early eighteenth-century charters. These lands encompassed parts of present-day Ohio, Illinois, Indiana, Michigan, Minnesota, and Wisconsin; however, land companies' and speculators' efforts to survey and sell these lands were hindered by the French and Indian War (1754-1763), Pontiac's War (1763-1766), and the American Revolutionary War (1775-1783). By 1786, the aforementioned states and colony ceded the Northwest Territory to the burgeoning United States federal government. This territory was augmented by Native land cessions, most notably in the treaties of Fort Stanwix (1784), Fort McIntosh (1785), Fort Finney (1786), Fort Harmer (1789), and Greenville (1795). Military conflicts as well as controversies surrounding Native and settler land titles continued into the nineteenth century (see Inset 1) (Perrin and Battle, 1880; Beers, 1881; Middleton, 1917).



Inset 1. 1899 Royce and Thomas Ohio Indian Land Cessions in the United States.
This map indicates the number and location of each cession by, or reservation for, the Native nations in present-day Ohio (Royce and Thomas, 1899, Collections of the Library of Congress, Geography and Map Division).

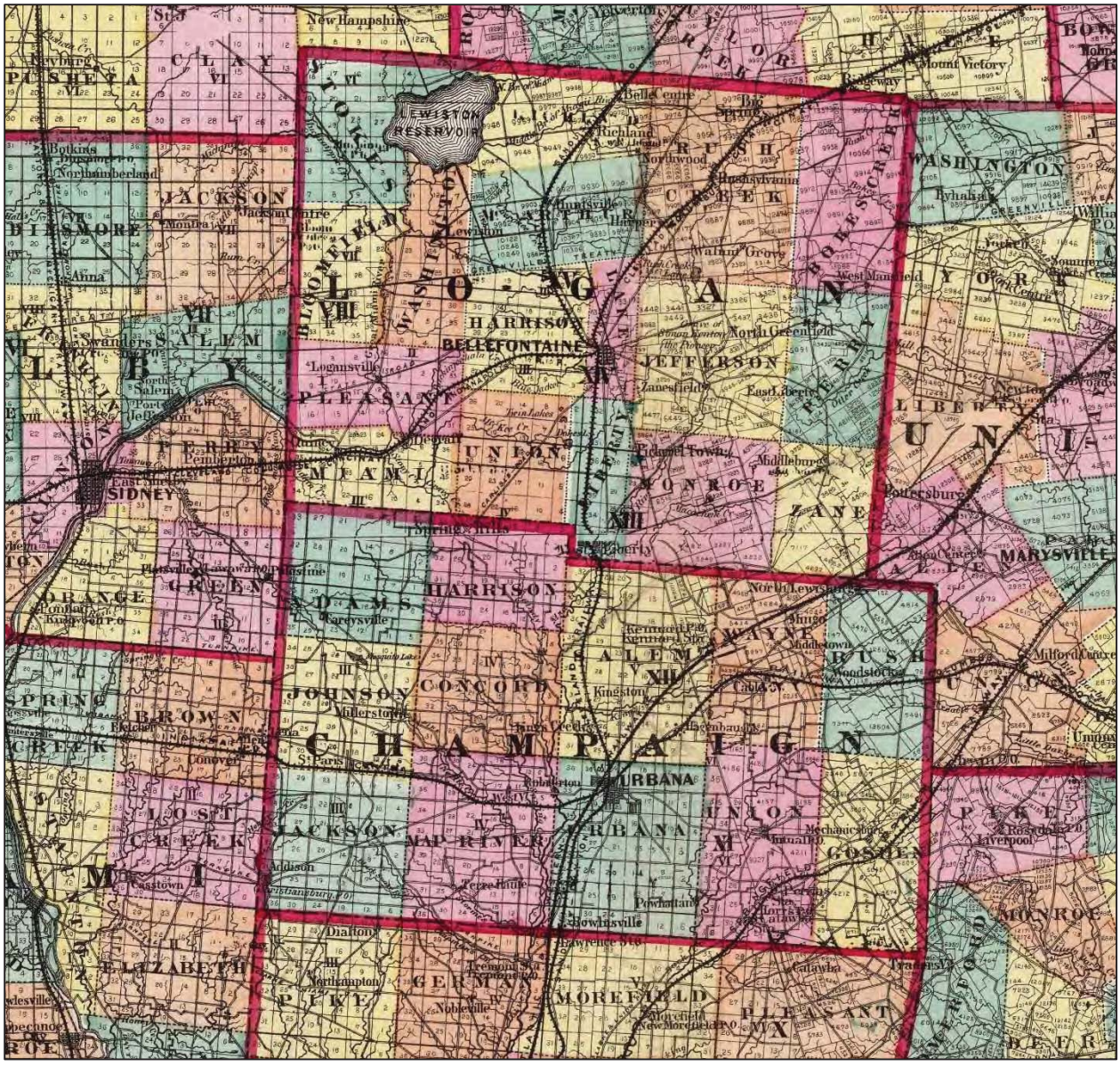
In the 1780s, these newly acquired lands in Ohio were divided and reclassified as Congress lands, US Military lands, Virginia Military District, Western or Connecticut Reserve, Fire lands, Ohio Company's Purchase, Donation Tract, Symme's Purchase, Refugee Tract, French Grant, Dolerman's Grant, Zanes Grant, Canal lands, Turnpike lands,

Maumee Road lands, School lands, College lands, Ministerial lands, Moravian Grants, and Salt Sections. Territory within the boundaries of Champaign County were included in the Congress lands and Virginia Military District. Congress lands were named in reference to the legislation that governed their sale. The US government's agents surveyed the land into north-south ranges of 6-mile square townships; the townships were later subdivided into 1-mile square sections, then 160-acre quarters, and lastly into 80-acre parcels. The Virginia Military District was originally reserved as land rewards for Virginia's American Revolutionary War veterans (Perrin and Battle, 1880; Middleton, 1917).

Champaign County was formed in 1805; however, its boundaries were highly contested and fluctuated to accommodate the formation of Clark and Logan Counties. Champaign County lacks a clear timeline of its early history. In the 1917 *History of Champaign County, Ohio, Its People, Industries and Institutions with Biographical Sketches of Representative Citizens and Genealogical Records of Many of the Old Families, Volume I,* Middleton explains that "the local commissioners' records are missing from the organization of the county in 1805 up to 1818." In 1805, the county seat was temporarily located in the Village of Springfield. Colonel William Ward laid out the Village of Urbana in Urbana Township, which became the new county seat in 1807. It later incorporated as a village in 1816 and as a city in 1868. Settlement and population growth in Champaign County increased steadily, with 6,303 residents in 1810 and 24,188 residents in 1870 (Middleton, 1917).

Adams Township, the last of Champaign County's townships to be organized, was formed in 1828. It was named in honor of U.S. President John Quincy Adams. Early settlement was hindered by vast swamps and few passable roads. This rural township exhibited limited population growth, with 1,123 residents in 1850 and 1,461 residents at its peak in 1890. The Village of Rosewood was incorporated in 1893 and became widely known as the "best shipping point" along the Detroit, Toledo & Ironton Railroad (Beers, 1881; Middleton, 1917).

Throughout the nineteenth century, much of the state was occupied by small farms. Shortly after Champaign County was established, wetlands were drained, and local and county roads were laid out. In the 1870s and 1880s, residents clamored for improved road conditions, which included the construction of corduroy (log lined), plank, and gravel roads. By 1881, Champaign County had 405 miles of roadways. During this period, rail lines traversed both counties; the Cincinnati, Sandusky & Cleveland (later known as the Big Four), the Pennsylvania, and the Detroit, Toledo & Ironton railroads and subsequent branches connected the townships to neighboring counties and states (see Inset 2) (Perrin and Battle, 1880; Middleton, 1917).



Inset 2. 1872 Gray, Lloyd, Walling Topographical Atlas of Ohio: Auglaize, Champaign, Clarke, Darke, Delaware, Franklin, Hardin, Logan, Madison, Marion, Mercer, Miami, Morrow, Shelby and Union Counties.
Although the rail lines greatly improved regional mobility for Champaign County, many remote farmers and residents continued to rely on local roads and turnpikes for transportation (Gray, Lloyd, Walling, 1872, Collections of the David Rumsey Historical Map Collection).

Champaign County contained thousands of acres of wetlands. These unfavorable conditions hindered settlers' initial attempts at agriculture. During the early-to-mid 1800s, the counties constructed drainage ditches of clay tile or pipe. The resulting drained lands provided fertile soil well suited to wheat, corn, buckwheat, and potatoes as well as pastureland for livestock. In addition to the primary crops, Champaign County had a successful dairy industry (Perrin and Battle, 1880; Middleton; 1917).

In 1845, the Ohio Board of Agriculture (renamed the Ohio State Board of Agriculture in 1846 and later replaced by the Ohio Department of Agriculture in 1920) was created to support and celebrate Ohio farmers through the establishment of farmers' institutes and county fairs. To achieve this, agricultural boards were created in each county to identify the county's needs and lead the planning process. Concurrently, the Ohio State Board of Agriculture also established the Ohio State Fair in 1849. Due to a cholera epidemic, the fair was postponed until 1850 and held in Cincinnati (Ohio History Central; 2020a, 2020b, 2020c).

Agricultural societies and fairs provided opportunities for farmers to share information with each other as well as with the public. The Champaign County Agricultural Society held its first county fair in 1841 on the farm of John Reynolds. Although the society purchased twenty-two acres in 1858, the fair outgrew these grounds. In 1893, the society purchased forty-one acres in Urbana for its new location (Perrin and Battle, 1880; Middleton, 1917). By the late-nineteenth century, farms struggled to remain viable as they faced competition from farms in western states, large local farms, increased mechanization, and the prohibitive cost of machinery. In the early-twentieth century, Governor James M. Cox directed state funds to support agricultural experiments and education for rural regions. Shortly after, Ohio farmers faced the economic impacts of the Great Depression along with severe droughts and crop failures. President Franklin D. Roosevelt instituted Depression-era programs to alleviate the financial strain and soil depletion. Rural areas gradually gained access to electricity, which increased efficiency. By the 1940s, agricultural production rebounded during World War II as farmers supplied food for United States and Allied forces. This period of prosperity immediately following WWII enabled Ohio farmers to invest in modern machinery. The number of farmers in Ohio and size of farms steadily decreased during the latter half of the twentieth century; however, industrial agriculture remains a key economic driver of Ohio's modern economy (Ohio History Central, 2020c).

2.4 Historic Maps Review

Historic maps depict nineteenth- and twentieth-century settlement and development within the Cultural Resources Study Area. Maps reviewed for the Study Area included the 1876 Starr and Headington *Atlas of Champaign County, Ohio*; 1875 Page and Smith *Combination Atlas Map of Shelby County, Ohio* (see Figure 6), the 1914 Mills *Archaeological Atlas of Ohio* (see Figure 5) and the 1962 *Port Jefferson, Ohio* and *De Graff, Ohio* USGS topographic quadrangles (see Figure 7).

1876 Starr and Headington *Atlas of Champaign County, Ohio*; 1875 Page and Smith *Combination Atlas Map of Shelby County, Ohio*

Figure 6 shows the primarily agricultural use of land in the mid/late-nineteenth century within the vicinity of the Project between the years of 1874 and 1876. The grid pattern is subdivided into square-mile agricultural lots bounded by roads, typically with a farmhouse structure shown within agricultural property lines and multiple divisions of lots in the more densely populated areas. The village of Quincy (incorporated in 1834) near the northern boundary of the Cultural Resources Study Area is the only incorporated village settlement, with Tawawa and Pemberton as unincorporated hamlets. New Palestine, renamed Tawawa in 1832, and Pemberton, platted in 1852, are depicted as crossroad settlements. These settlements are located between 1-2 miles from the Project Area. Quincy and Pemberton are connected by the Cleveland, Cincinnati, Chicago and St. Louis (CC&StL) Railway running directly through both populated areas. The Great Miami River as well as Indian Creek and Little Indian Creek are located north and west of the Project Area.

1914 Mills *Archaeological Atlas of Ohio*

The 1914 Mills *Archaeological Atlas of Ohio* (see Figure 5) also was reviewed during background research for the current project, and precontact archaeological sites depicted in the atlas were discussed in Section 2.3 of this report. In addition to archaeological sites, the Mills *Atlas* also depicts the state of development throughout Ohio in 1914. The Mills *Atlas* depicts the grid pattern and transportation routes including the CCC&StL Railway and a series of pikes running along the grid pattern defining the Champaign, Logan and Shelby Counties there is little additional data shown on the map.

1962 *Port Jefferson, Ohio and, De Graff, Ohio* USGS topographic quadrangles

Figure 7 depicts little change in the pattern of land use the mid-twentieth century within the Project Area. New vehicular transportation routes include State Route 235 running north/south along the eastern edge of the Project Area where it intersects with Ohio State Route 706, running east/west south of the hamlet of Pemberton. Trains are still in use within the Study Area in 1962, operated by the Central New York Railroad. Quincy and Pemberton and Tawawa remain the most developed settlements within 2 miles of the Project Area, with Quincy being the largest.

The Cultural Resources Study Area is rural and set in area of generally low topographic relief. The majority of the landscape within the Cultural Resources Study Area is that of flat, open agricultural fields. These fields are bisected by long, straight rural transportation routes that form blocks of approximately one square-mile each, also bisected by smaller gravel roads. When not interrupted by rare woodlots, the relatively level topography within the Cultural Resources Study Area allows for clear views to any nearby historic resources. Views to farmhouses and agricultural buildings within large scale farming landscapes are dependent on their distance from the public rights-of-way and

intervening structures and vegetation. Developed features in the Project Area include electric transmission lines, communication towers, water towers, public roads, single family homes and agricultural buildings.

The Project Area itself does not include any population centers or major industries. At the periphery of the Cultural Resources Study Area are the higher density developed hamlets of Pemberton (approximately 1.6 -miles north of the proposed Project) and Tawawa (approximately 1.3-miles south of the proposed project), and the Village of Quincy (approximately 0.8 miles north-northeast of the proposed Project).

3.0 PROPOSED ARCHAEOLOGY SURVEY RESEARCH DESIGN

The archaeological research design described below was prepared in accordance with the OHPO Ar*chaeology Guidelines* (1994). It includes a description of the APE for Direct Effects and the potential impact on archaeological resources for the Project. In addition to conducting a literature review and background research for the Project, EDR created a GIS-based archaeological sensitivity model in order to assess the probability of encountering archaeological resources based on variables described below. This assessment evaluates the relative potential for the presence of archaeological resources based on elevated and reduced sensitivity for either pre-contact or historic-period resources.

Project components will be constructed entirely on relatively level ground and within areas presently or historically used as agricultural fields. Due to the flat relief, very little to no grading is expected to be necessary for the Project, except for the substations, which may require modest grading and excavation. In general, no large areas of excavation or soil removal/disturbance are anticipated. Construction of the Project will be accomplished via use of machines that are consistent in terms of size, weight, and tread with the agricultural machines that are currently used on these properties.

Only very minimal, on-site ground disturbance (outside of the substations) will be required by the design of the Project. Installation of the solar panels will not include disturbance of large surface areas. Instead, the solar panels will be installed by driving or rotating a series of relatively narrow posts into the ground, typically to a depth of no more than ten feet. However, the Project will include on-site access roads and a number of temporary laydown areas for construction activities. These access roads, as well as parking areas for maintenance vehicles within the Project, will be constructed with compacted gravel but will not necessitate significant excavation or grading.

3.1 APE for Direct Effects

The APE for Direct Effects for the Project is defined as the 1,075-acre of potential soil disturbance (or other direct, physical impacts) during Project construction. Preliminary components of the Project were discussed above in Section 1.3, and the APE for Direct Effects will occupy less than the 1,196-acre Project Area.

The solar panels will be mounted on racks with a relatively small footprint (in terms of soil disturbance), typically consisting of small I-beam posts driven into the ground. In addition, relatively minor ground disturbance will occur during installation and construction of the Project's electrical collection cables (which will be buried in trenches), the substations, access roads, and other components. The Project Area is located in an area with very flat topography, which will require minimal (if any) grading during construction. Therefore, the total ground disturbance during construction is anticipated to be minimal relative to the overall size of the Project Area.

3.2 Archaeological Sensitivity Assessment

The Project will not directly (physically) impact any previously recorded archaeological resources. As described in Section 2.2, above, no OAI resources or previous cultural resource surveys are recorded within the Project Area. As part of the research design, EDR assessed the probability of encountering archaeological resources within the APE for Direct Effects based on review of the OHPO's online database, the results of background research and historical map analysis, and GIS-based landscape/environmental analysis. The results of this assessment for pre-contact Native American and historic-period archaeological resources is presented below and represented in Figure 8.

3.2.1 Pre-Contact Archaeological Sensitivity

EDR prepared a GIS-based landscape analysis to identify areas of elevated archaeological sensitivity. The analysis included review of publicly available data sets for environmental variables, such as proximity to water resources and ground slope. In addition to the environmental variables examined, the model also takes into account proximity to previously recorded pre-contact Native American archaeological sites.

Per the National Wetlands Inventory (NWI) mapping, aquatic resources are organized by type, and include riverine, pond, lake, emergent wetland, forested/shrub wetland, and "other," waterways/bodies. In line with Nolan's (2014) research, this analysis revealed that riverine aquatic resources are a much stronger predictor of pre-contact site location than wetlands. Regardless, the Ohio History Connection (2020b) describes wetlands as some "of the most archaeologically sensitive areas in Ohio." During this analysis, several ponds were noted in the Project Area, but almost always appeared to be of artificial origin for agricultural purposes. As such, ponds were largely excluded from this analysis.

Data sources used for streams and wetlands include the NWI mapped streams and wetlands as well as streams and wetlands delineated during the stream and wetland survey conducted for the Clearview Solar Project. In order to eliminate as many artificial waterways or waterbodies from consideration, any mapped streams with Canal, Ditch, or Cutoff in the name were eliminated from consideration. Additionally, any unnamed mapped streams occurring in straight lines, containing right angles, and/or aligned with the road-grid were also eliminated from consideration. Any ponds which appeared to be man-made were also excluded. It is important to note that additional artificial streams or waterbodies may be identified in the field by archaeological survey crews and, therefore, the archaeological sensitivity model may be adjusted slightly following Phase I fieldwork.

Proximity to streams and wetlands appears to be the most powerful environmental factor influencing pre-contact settlement in this area. Based on the analysis of similar sites and contexts—EDR has found that a majority of pre-contact Native American sites are located within 1,000 feet (305 meters) of a mapped stream or wetland. EDR's experience with two recent archaeological projects in Paulding County and Brown County, Ohio respectively (EDR, 2019a & 2019b), show positive results for the use of the sensitivity model summarized in Table 4, below. The Phase I archaeological survey for a proposed wind farm (EDR, 2019a) identified or revisited 37 archaeological resources, 32 (86%) of which were located partially or wholly within archaeologically sensitive areas, as defined by the model. For the Phase I archaeological survey for a solar facility now under construction (EDR, 2018b), the sensitivity model strongly predicted the locations of archaeological resources. The survey identified 22 total archaeological resources (sites and isolated finds), 21 (96%) of which were located partially or wholly within archaeologically sensitive areas, as defined by the model. Only one historic-period site was in an area identified as having low archaeological sensitivity by the model. This site was located just beyond the 200-foot perimeter of elevated historic-period sensitivity, a discrepancy possibly due to cartographic inaccuracies in the historic maps.

EDR has also examined the relationship between pre-contact sites and soil drainage and found that a majority of sites occur in soil areas that are moderately well drained. Soil drainage characteristics are derived from Soil Survey Geographic Database (SSURGO) data. In addition, least-cost pathways represent the shortest travel distance between archaeological sites, taking into consideration avoidance of steep topography and proximity to water resources. Least cost pathways between previously recorded archaeological sites containing earthworks are considered areas of elevated archaeological sensitivity. Our analysis indicates that the 1,000-foot buffer reflecting the elevated sensitivity near water resources already reflects the least cost pathways between the mounds indicated in the Mills Atlas and OAI inventory sites.

Based on this correlation, portions of the Project Area within 1,000 feet of naturally occurring streams and wetlands are considered to have an elevated sensitivity for containing pre-contact archaeological material (see Figure 8), while areas more than 1,000 feet from naturally occurring streams and wetlands are considered to have a reduced sensitivity for containing such material.

3.2.2 Historic-Period Archaeological Sensitivity

Historic maps depict nineteenth-century settlement and twentieth-century expansion within the vicinity of the Project Area. There are no previously recorded historic-period archaeological sites within the Project Area. As mentioned above in Section 2.5, EDR reviewed the following maps to identify the locations of former structures within and surrounding the Project Area:

- 1875 Page and Smith *Combination Atlas of Shelby County, Ohio*
- 1876 Starr and Headington *Atlas of Champaign County, Ohio*
- 1874 Stewart *Combination Atlas Map of Logan County, Ohio*
- 1914 Mills *Archaeological Atlas of Ohio*
- 1962 USGS *Port Jefferson, Ohio* 1:24000 scale Topographic Quadrangle (USGS, 1962)
- 1962 USGS *De Graff, Ohio* 1:24000 scale Topographic Quadrangle (USGS, 1962)

Map-documented structures (MDS) in the vicinity of the Project are generally located adjacent to existing roadways. In some instances, MDS represent existing buildings and/or farms. In other instances, they are abandoned structures that may now be represented only by archaeological remains. Potential archaeological resources associated with these MDS locations could include abandoned residential, municipal (i.e., school), and/or farmstead sites, where the complete residential, municipal, and/or agricultural complex consisting of foundations, structural remains, artifact scatters, and other features, would constitute an archaeological site. In other locations, more limited remains of these sites, perhaps represented by only a foundation or an artifact scatter, may be present.

Areas located in the immediate vicinity (within approximately 200 feet) of MDS locations are considered to have high potential for the presence of historic-period archaeological resources. Early historic-period occupation in the vicinity of the Project, however, may not always be map-documented. Early historic-period sites not appearing on early maps would likely be located within close proximity to the water resources. As such, the 1000-foot buffer for pre-contact Native American archaeological resources would encompass early historic-period resources. The remaining (non-MDS) portions of the Project Area are considered to have reduced sensitivity to contain historic-period archaeological resources.

3.3 Phase I Archaeological Survey Methodology

It is proposed that the Phase I survey include archaeological investigation within all areas of the APE for Direct Effects, in accordance with the archaeological sensitivity model described above in Section 3.2. The Phase I survey methodology proposed in this survey strategy was designed in accordance with the *Archaeology Guidelines* (OHPO, 1994). The archaeological research design and sensitivity model are summarized below in Table 4 and depicted in Figure 8. It is proposed that Phase I archaeological investigations be conducted in 100% of all areas that show an elevated sensitivity for pre-contact and historic-period archaeological sensitivity. Those areas that are not considered

to have elevated sensitivity for archaeological resources will be subjected to Phase I archaeological survey at a 50% sample.

Table 4. Archaeological Sensitivity Model

Archaeological Sensitivity	Criteria	Acreage of the Archaeological Survey Area	Recommended Phase I Survey Intensity
Elevated Sensitivity for Historic-Period Archaeological Material	<200 feet from historically map-documented structure	94 acres	100% Phase I survey
Elevated Sensitivity for Pre-Contact Archaeological Material	<1,000 feet from naturally occurring stream/wetland	879 acres	100% Phase I survey
Elevated Sensitivity for Both Historic-Period and Pre-Contact Archaeological Material	<200 feet from historically map-documented structure and <1,000 feet from naturally occurring stream/wetland	60 acres	100% Phase I survey
Reduced Sensitivity for Pre-Contact and Historic-Period Archaeological Material	>200 feet from historically map-documented structure and >1,000 feet from naturally occurring stream/wetland	224 acres	50% sample (112 acres) Phase I survey with specific areas selected on a judgmental basis under the supervision of an archaeologist meeting the Secretary of the Interior's Standards (36 CR 61)

Within the areas of reduced sensitivity for archaeological resources, 50% of the area will be selected for archaeological survey at the same sample rate as the elevated sensitivity areas, as opposed to increasing the pedestrian survey interval to 20-meter transects from the standard 10-meter, and/or conducting 8 shovel tests per acre rather than the normal 16. Selection of the reduced sensitivity areas to be sampled by the Phase I survey will prioritize areas of potential pre-contact occupation not identified during the archaeological sensitivity assessment presented above. These could include small wetlands identified in the wetlands mapping for the Project, or micro-variations in topography. Surveying 50% of the reduced sensitivity areas at the normal survey interval, per the *Archaeology Guidelines* (OHPO, 1994), is preferable to surveying 100% of reduced sensitivity areas at a wider survey interval.

It should be noted that the APE for Direct Effects may change from the current acreages presented herein, as the Project layout may be modified following submission of this research design. However, any changes in the extent of the survey will be consistent with the archaeological sensitivity model and research design presented herein. The

approach and level of effort proposed for the archaeological survey is expected to generate an adequate testing sample to evaluate the Project's potential effect on archaeological resources.

3.3.1 Pedestrian Surface Survey

In existing agricultural fields with greater than 50% ground surface visibility within the APE for Direct Effects, EDR personnel will conduct pedestrian surface surveys to determine whether archaeological sites are present. In these areas, archaeologists will traverse the APE for Direct Effects along transects spaced at 30-foot (10-meter) intervals while inspecting the ground surface for artifacts and/or archaeological features. The timing for this work is critical as the surface survey needs to be conducted after a field has been freshly plowed and disked, preferably following a rain event. If any artifacts or other indications of an archaeological site are observed on the ground surface, then the location will be recorded using professional-grade Global Positioning System (GPS) equipment. After recording the horizontal extent of artifacts and the locations of any features present at a given site, archaeologists will assess whether the artifacts present on the ground surface warrant collection. In most instances, a sample of diagnostic or especially significant artifacts will be collected, with most artifacts being noted but left *in situ*. All diagnostic pre-contact artifacts will be collected for further analysis. Collected artifacts will be subjected to subsequent laboratory identification and analysis in accordance with standard archaeological methods. At least one 50 x 50-cm shovel test will be excavated at each archaeological site or isolated find to assess the subsurface stratigraphy and the potential for buried artifacts and features. It is anticipated that the majority of the APE for Direct Effects will be investigated using pedestrian surface survey. These pedestrian survey methods will be used in both elevated and reduced areas for probability of archaeological resources, with the caveat that, as discussed above, only 50% of reduced probability areas will be surveyed.

3.3.2 Shovel Testing

In addition to the pedestrian surface survey described above, archaeologists will excavate shovel tests in any portions of the APE for Direct Effects with less than 50% ground surface visibility in order to determine whether archaeological sites are present per the *Archaeology Guidelines* (OHPO, 1994). Where conditions warrant, shovel tests will be excavated throughout the APE for Direct Effects at 100% of elevated probability areas and at 50% of reduced probability areas, using the same sampling strategy described above.

Additionally, at least one shovel test will be excavated at each archaeological site or isolated find identified during the pedestrian surface survey in order to assess the subsurface stratigraphy and the potential for buried artifacts and features. Shovel tests will be 50 x 50 cm squares, excavated to a depth of at least 10 cm into the "B" horizon subsoil

stratum. Shovel tests will be excavated in 10-cm arbitrary levels and/or by natural stratigraphic levels, depending on the stratigraphy encountered. Archaeologists will record the locations of shovel tests with professional-grade GPS equipment with real-time reported sub-meter accuracy (with all field data post-processed), while also noting shovel test locations on field maps. All soils excavated from shovel tests will be screened through 0.25-inch hardware cloth to ensure uniform recovery of cultural material. Archaeologists will record shovel test stratigraphic profile data on standardized field record sheets that include strata depth, Munsell soil colors, soil texture and inclusions, and any cultural materials (these data will be included in the final Phase I report).

3.3.3 Artifact Collection and Analysis

In the event that artifacts are collected during the survey, standard provenance information will be recorded in the field and the locations of all finds will be recorded using professional-grade GPS equipment and documented with field notes. All artifacts will be placed in temporary sealed plastic field bags labeled with provenance data. All collected artifacts will be retained by EDR for processing and placement in archival-grade polyethylene artifact bags. Typically, diagnostic, unique, or unusual artifacts, or samples thereof, from shovel tests will be collected during the survey. Clearly modern materials (i.e., less than 50 years old) and commonplace twentieth-century materials will not be collected as part of the survey (however, the presence of these materials will be recorded in field notes and representative photos taken in the field, as appropriate).

Following the completion of fieldwork, all recovered materials will be washed, dried, and cataloged per standard archaeological laboratory procedures. Artifacts will be described (to the extent possible) according to their count, material, type, metric attributes, decorative motif, form, function, and cultural/temporal association. Artifact identification will be conducted according to standard references for pre-contact and historic-period artifacts. A complete listing of all recovered artifacts will be included as an appendix of the final Phase I report. Artifacts will be curated in accordance with Section V of the *Archaeology Guidelines* (OHPO, 1994).

3.4 Archaeological Site Avoidance/Minimization

It is anticipated that any potentially significant (i.e., potentially NRHP-eligible) archaeological sites identified during the survey will be avoided or minimized by Project design. Because the Project Area includes large tracts of mostly open agricultural land, and the flexible nature of solar energy project components (in terms of siting constraints), it should be possible to avoid or minimize impacts to any potentially significant archaeological sites identified within the APE for Direct Effects through relatively minor modifications to the preliminary Project layout. In the event that a potentially

NRHP-eligible archaeological site cannot be avoided by the Project, then additional site investigations and /mitigation would be explored with the OHPO.

In most instances, the types of finds noted below will not be considered NRHP-eligible. As such they are not expected to necessitate avoidance or additional archaeological investigations:

- isolated pre-contact finds,
- isolated historic-period finds,
- small low-density lithic scatters that lack diagnostic artifacts and/or indications of intact subsurface features,
- low-density scatters of historic-period artifacts (particularly in agricultural fields, which likely represent artifacts associated with manuring practices that cannot be associated with specific households or contexts), and
- artifacts/deposits of clearly modern origin.

4.0 PROPOSED HISTORIC RESOURCES SURVEY RESEARCH DESIGN

The historic resources survey research design was prepared in accordance with the *Guidelines for Conducting History/Architecture Surveys in Ohio* (OHPO, 2014; hereafter called the *OHPO Guidelines*). It defines the APE for Indirect Effects on historic resources for the Project. To accurately determine the Project's APE, the viewshed analysis was based on a digital elevation model (DEM), which only considers the screening effects of topography. Buildings and vegetation were not considered. Additional detail about the APE for Indirect Effects is provided in Section 4.1.

The goal of this Historic Resources Survey Research Design is to:

- Define the APE for Indirect Effects on historic resources for the Project (see Section 4.1);
- Establish the criteria by which historic resources will be evaluated (see Section 4.2);
- Propose a methodology for a reconnaissance survey of historic resources (see Section 4.3);
- Establish expectations regarding resource typologies and survey results (see Section 4.4); and
- Define the deliverables for the survey (Section 4.5).

4.1 APE for Indirect Effects

The APE for Indirect Effects on historic resources includes those areas where the Project may result in indirect effects on cultural resources, such as visual or auditory impacts. The Project's potential indirect effect on historic resources would be a change (resulting from the introduction of solar panels or other Project components) in the historic resource's setting. This could theoretically consist of auditory and/or visual impacts; however, utility-scale solar facilities produce minimal noise, so auditory impacts resulting from the Project are not considered a significant type of impact to the setting of historic resources. Therefore, potential visual impacts associated with the Project are the relevant consideration for defining an APE for Indirect Effects.

In order to accurately determine the Project's APE for Indirect Effects, a preliminary viewshed analysis for the proposed solar panel arrays was prepared using Environmental Systems Research Institute (ESRI) ArcGIS® software with the Spatial Analyst extension. The viewshed analysis was based on a digital elevation model (DEM), which accounts only for the screening effects of topography, and not buildings or vegetation. The DEM used in this analysis was downloaded from the Ohio Geographically Referenced Information Program (OGRIP) for Champaign County.

Through simulations prepared for several previous Ohio solar projects, EDR had determined that the practical limits of solar panel visibility end at approximately two miles due to their relatively low height (less than 15 feet). Even at distances closer to one mile, it is challenging for rows of panels installed on level ground to be discerned as such from the background and horizon. Furthermore, the visual effect of the substations are anticipated to be insignificant because the equipment will blend into the existing landscape from any open views beyond two miles and similar structures are common features of most landscapes. The generally flat topography in the area and absence of elevated vantage points further contributes to the lack of distant Project views more than one mile away.

The potential visual effects that could result from construction and operation of the Project's taller components associated with the two substations (see Section 1.3) will be minimal. This is due to intentional project siting, combined with design, and visual character of the proposed equipment, which avoid visual impacts. The collection lines will be buried. The Gen-Tie likely will be less than 100 feet long and have limited visually prominent features including a single dead-end structure. These components will be located directly adjacent to the existing transmission line. and, as such, will blend with the existing structures, thus minimizing any visual impact. From distances beyond one mile these limited structures of modest height will be difficult to discern on the landscape.

The two substations will occupy only a few acres and their components will be of only modest heights. A fence will be installed around the perimeter of the substations. The substations will be located adjacent to the existing transmission line and set back at least 25 feet from the edge of right-of way of the public road. The locations of the substations are such that relatively few residences will have any meaningful view of them, except at a considerable distance. This placement minimizes the change in landscape character and, in turn, the visual impact and blend into the existing environment at only relatively short distances.

The tallest equipment within the proposed substations will be lightning masts, which are very narrow and expected to largely fall within the mature canopy of nearby hedgerows and forest stands. During leaf-off conditions the scale of the mast tip is similar in scale to the branching structure of the mature canopy allowing for the minimalization of impact throughout all seasons. The lower, more visually dominant components of the substations will be below the height of adjacent vegetation and will benefit from additional screening due to understory vegetation. Therefore, visibility and visual impact of the substations are anticipated to be localized and minor and are not anticipated to result in significant visual impacts.

Therefore, an appropriate APE for Indirect Effects for the Project includes those areas within the Cultural Resources Study Area with potential visibility of the Project as defined by the DEM viewshed results, for its various components

considering all maximum heights (see Figure 9). For a number of previous solar projects in the state of Ohio, EDR and other firms have received approval to define the APE for Indirect Effects using the above methodologies.

4.2 Criteria for Evaluating the Significance for Historic Resources

Historically significant properties are defined herein to include buildings, districts, objects, structures and/or sites that have been listed on, or determined eligible to the NRHP, as well as those properties that have been recorded in the OHI, OGS, and ODOT historic resource inventories. Criteria set forth by the National Park Service for evaluating historic properties (36 CFR 60.4) state that a historic building, district, object, structure or site is significant (i.e., eligible for listing on the NRHP) if the property conveys certain characteristics (per CFR, 2004; NPS, 1990):

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:
>
> (A) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) that are associated with the lives of persons significant in our past; or
>
> (C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (D) that have yielded, or may be likely to yield, information important in prehistory or history.

Historic resources surveys undertaken by EDR in association with the Project will be conducted by architectural historians who satisfy the professional qualifications criteria per the Secretary of the Interior's Standards for Historic Preservation (36 CFR 61).

EDR staff are thoroughly familiar with vernacular architectural styles and agricultural traditions, historic settlement and agrarian land use patterns, and relevant historic contexts for the Cultural Resources Study Area. Expectations about the kind, number, location, character and conditions of historic properties within the APE for Indirect Effects is discussed in Section 4.4.

4.3 Historic Resources Survey Methodology

EDR will conduct a historic resources survey for the Project to fulfill the requirements of the Application. The historic resources survey will be conducted in accordance with the 2014 *OHPO Guidelines*. Field observations and photographs, in conjunction with viewshed mapping, will provide the basis for evaluating the Project's potential effect on historic resources including buildings, structures, objects, sites and districts.

In addition to the historic context and historic maps review (Sections 2.4 and 2.5 above), additional research will be conducted during fieldwork such as visits to history rooms at local libraries, the Champaign County Historical Society and the county auditor's office to further inform the historic resources survey.

EDR will conduct a reconnaissance-level historic resources survey of the Project's APE for Indirect Effects (i.e., areas within 2 miles of the Project where viewshed analysis indicates potential visibility). The historic resources survey will identify and document those buildings, sites, structures, objects, and/or districts within the APE that, in the opinion of EDR's architectural historian, appear to satisfy NRHP eligibility criteria. In addition, the survey will also be conducted for the purpose of providing updated photographs and recommendations of eligibility for NRHP-listed and eligible resources, as well as previously designated OHI, ODOT and OGS sites within the APE whose NRHP eligibility has not formally been determined. EDR will photo-document previously unidentified historic properties within the APE for Indirect Effects, that, in the opinion of EDR's architectural historians, do not meet NRHP-eligibility criteria. The purpose is to assist the OHPO with its determination regarding "which resources warrant further investigation and which resources, due to a lack of integrity, architectural significance, etc., do not" (OHPO, 2018).

Historic resources survey fieldwork will include systematically driving all public roads within the APE for Indirect Effects to evaluate historic resources within the Project viewshed. When those resources are identified, the existing conditions of the property will be documented. This includes photographs of the building(s) and property, a photograph of each outbuilding, a brief description of the setting, estimated construction date(s), and field notes describing the style, physical characteristics and materials (e.g., number of stories, plan, external siding, roof, foundation, and sash), condition, and physical integrity for each resource. Other known criteria aside from architecture which may contribute to a property's NRHP eligibility will be noted and evaluated as well.

Evaluation of historic resources within the APE will focus on the integrity (with respect to design, materials, feeling, and association) to assess the potential architectural significance of each resource. However, physical condition will not be the primary determinant of inclusion, per the 2014 *OHPO Guidelines*, which instruct that surveys are to include "vernacular and high style examples, paying attention to regional and repeated building types as they often reflect

important patterns in regional or statewide development." If deemed appropriate, individual buildings located within clusters will not be documented as individual properties, but instead will be described collectively as potential districts. EDR will document through field notes the extent to which the visual setting associated with these properties could be affected by the proposed project.

All properties included in the historic resources survey will be photographed and assessed from public rights of way and evaluated based solely on the visible exterior of the structures. No inspections or evaluations requiring access to the interior of buildings, or any portion of private property, will be conducted as part of this assessment. Although the survey will focus on buildings that are over 50 years old with high architectural integrity, buildings that are less than 50 years in age with a distinctive architectural style, representing a physical expression of the modern period, or having historical significance through a historic theme as evaluated by EDR's architectural historian also will be documented per the 2014 *OHPO Guidelines.*

4.4 Expected Survey Results

Forty-six previously identified OHI-recorded buildings and six OGS-designated cemeteries within the Cultural Resources Study Area suggests likelihood that additional historic buildings and cemeteries will be identified within the APE for Indirect Effects. Buildings may include those typical of agricultural landscapes such as farmhouses, barns and agricultural support buildings. Based on desktop research, it is not expected that any OGS-identified cemetery would be eligible for NRHP listing based on Criterion Consideration D.

In addition, consultation with local historic societies and/or historians may identify properties that may be NRHP-eligible due to non-architectural associations (i.e. their significance is derived from associations with significant events or persons per National Register Criteria A and B).

4.5 Historic Resources Survey Report and Inventory Forms

EDR will prepare a stand-alone historic resources survey report following the format outlined in the 2014 *OHPO Guidelines* and updated *Survey Report Submission Requirements* (OHPO, 2018). Special attention will be paid to the viability of farmsteads and agricultural structures associated with the historic context of the Cultural Resources Study Area.

Per the OHPO *Survey Report Submission Requirements* (OHPO, 2018), the historic resources survey report also will include completion of Ohio Historic Inventory Forms (I-Forms) for newly identified and OHI-designated historic

properties within the APE that, in the opinion of EDR's architectural historians, meet or exceed the NRHP eligibility criteria using the OHPO I-Form Application Database, as required by the 2014 *OHPO Guidelines*. Information included will be appropriate to a reconnaissance-level survey. Prior to submitting the forms, EDR will contact the OHPO with a list of surveyed resources and addresses for each property so that OHI numbers can be assigned.

Per the *Survey Report Submission Requirements*, one color hard copy and one digital PDF copy of the survey report (including GIS data), will be submitted to the OHPO for project review.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The proposed Project will not directly (physically) impact any known cultural resources. It is currently proposed that 100% of the APE for Direct Effects identified as having elevated archaeological sensitivity be subjected to a Phase IB archaeological survey, and that 50% of the APE for Direct Effects identified as having reduced sensitivity for archaeological resources be surveyed.

The Project has the potential to cause indirect visual impacts to aboveground historic resources within the Cultural Resources Study Area where there are 46 OHI buildings and 6 OGS cemeteries. Based on a review of historic maps, there may be several nineteenth century and/or early-twentieth century map-documented structures within the APE for Indirect Effects. To determine if there are extant or additional historic resources that could be affected by the Project, a reconnaissance survey for architectural resources will be conducted throughout the APE for Indirect Effects.

The records review and research designs presented herein are provided to OHPO for approval in advance of the cultural resource surveys, to evaluate the proposed sampling strategy, field methodologies, as well as to ensure that the proposed scope of the surveys is consistent with OHPO's standards. Please provide a formal response indicating OHPO's concurrence with and/or comments on the research designs described herein.

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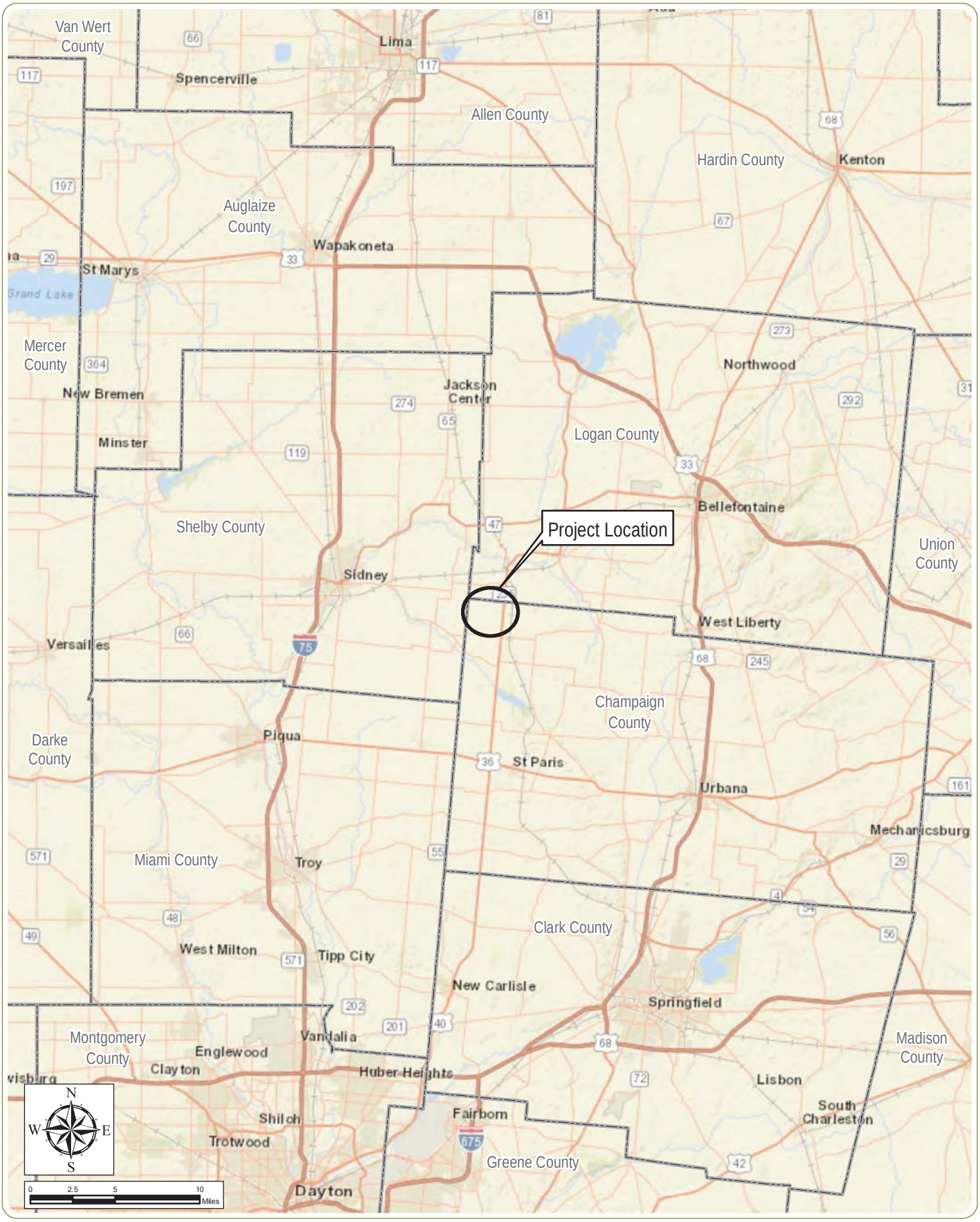
Figures



Clearview Solar Project

Adams Township, Champaign County, Ohio

Figure 1: Regional Project Location

Notes: 1. Basemap: ESRI ArcGIS Online "World Street Map" map service. **2.** This map was generated in ArcMap on August 20, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

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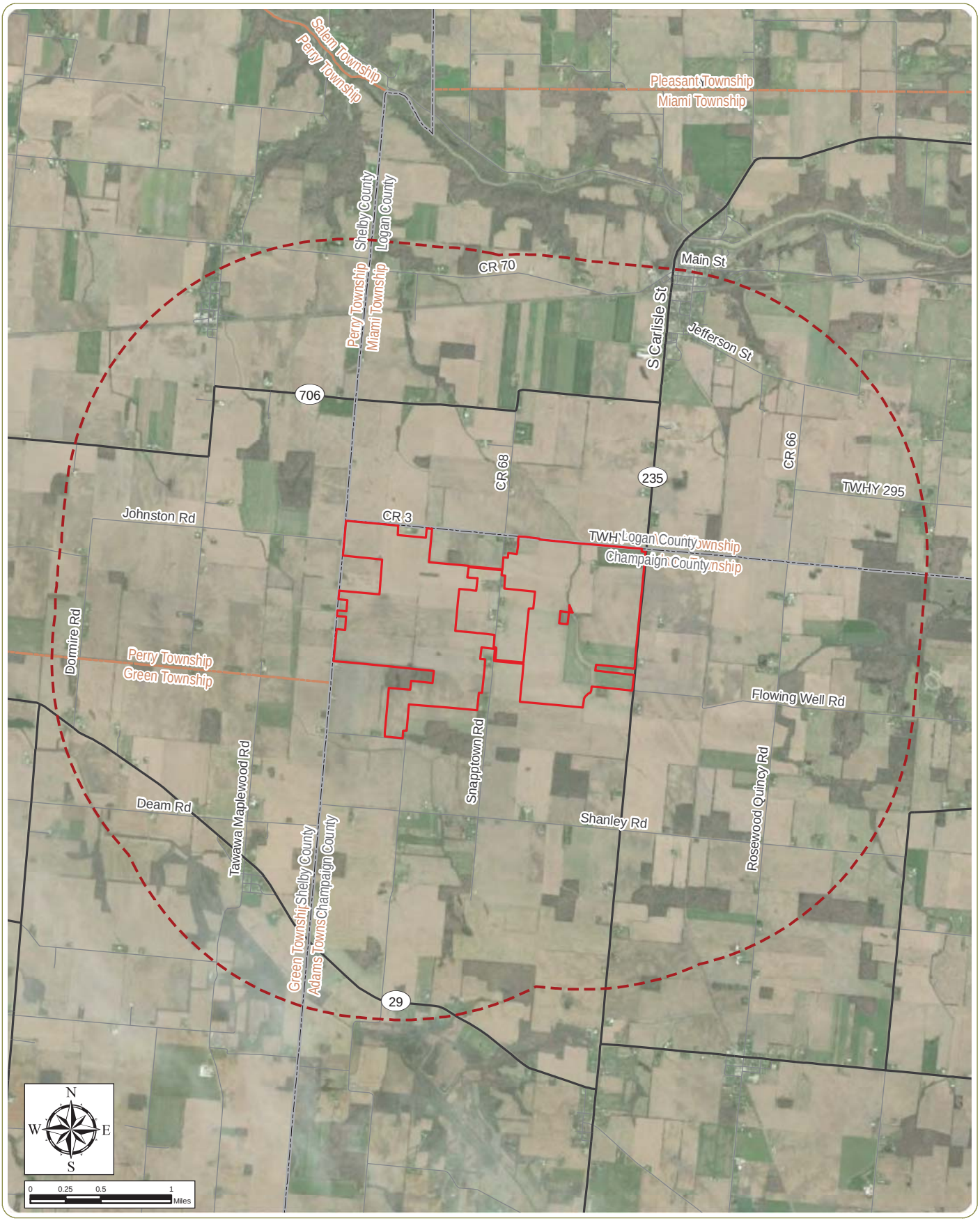

Clearview Solar Project

Adams Township, Champaign County, Ohio

Figure 2: Project Area and Cultural Resources Study Area

Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. **2.** This map was generated in ArcMap on August 20, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Project Area
- Cultural Resources Study Area
- Township Boundary
- County Boundary

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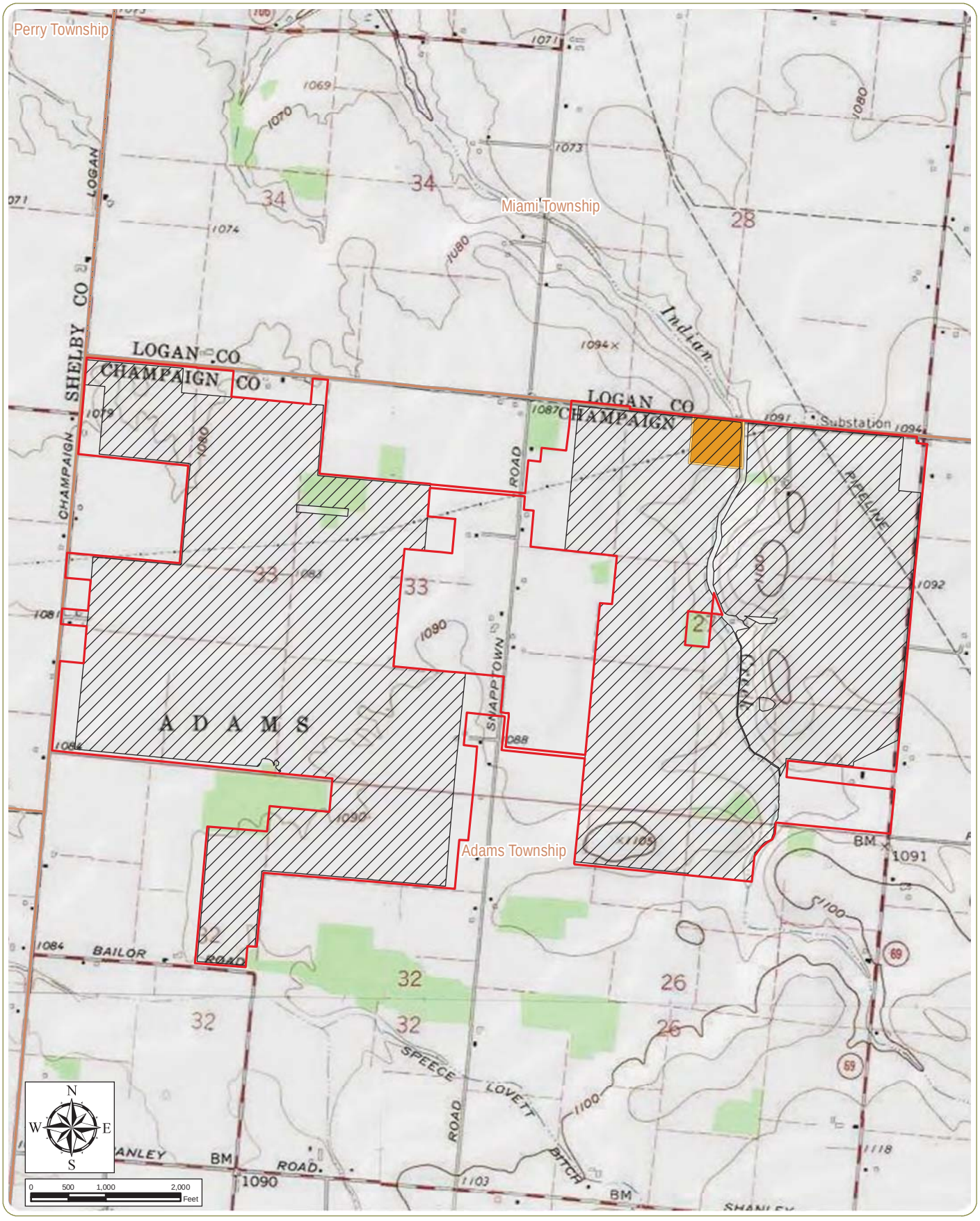

Clearview Solar Project

Adams Township, Champaign County, Ohio

Figure 3: Project Components

Notes: 1. Basemap: ESRI ArcGIS Online "USGS National Map" map service. **2.** This map was generated in ArcMap on August 20, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Substation
- Buildable Area
- Project Area
- Township Boundary
- County Boundary

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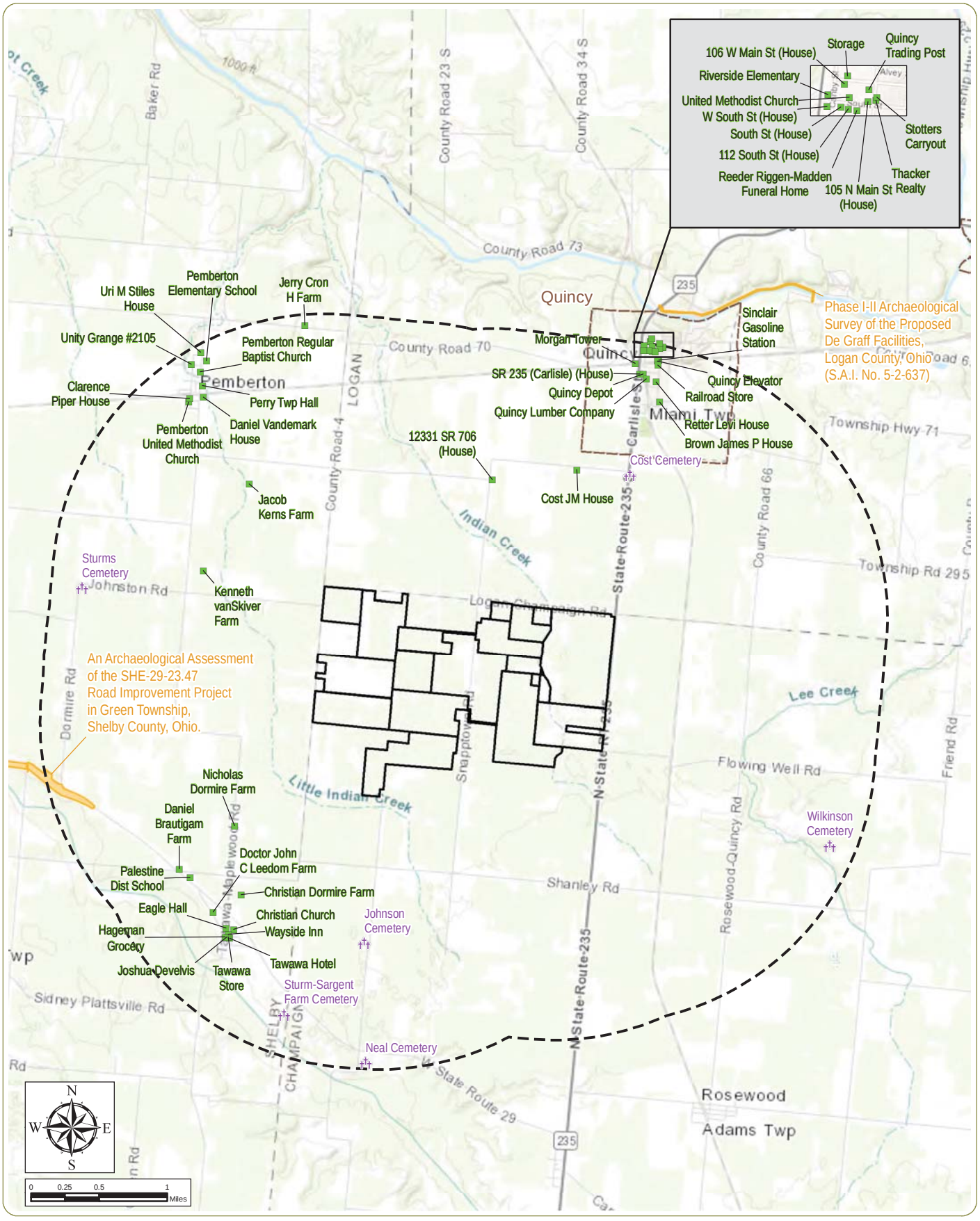

Clearview Solar Project

Adams Township, Champaign County, Ohio

Figure 4: Previously Identified Cultural Resources and Previous Cultural Resource Surveys

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. **2.** This map was generated in ArcMap on August 20, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- OGS Cemetery
- OHI Historic Structure
- Previous Archaeological Survey
- Project Area
- Cultural Resources Study Area

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Clearview Solar Project

Adams Township, Champaign County, Ohio

Figure 5. 1914 Mills *Archaeological Atlas of Ohio*

Notes: 1. Basemap: 1914 Mills *Archaeological Atlas of Ohio*. **2.** This map was generated in ArcMap on August 20, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

Project Area

Cultural Resources Study Area

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Clearview Solar Project

Adams Township, Champaign County, Ohio

Figure 6. 1876 Starr and Headington *Atlas of Champaign County, Ohio*; **1875 Page and Smith** *Combination Atlas Map of Shelby County, Ohio*; **and 1874 Stewart** *Combination Atlas Map of Logan County, Ohio*

Project Area

Cultural Resources Study Area

Notes: 1. Basemap: 1876 Starr and Headington *Atlas of Champaign County, Ohio*; 1875 Page and Smith *Combination Atlas Map of Shelby County, Ohio*; and 1874 Stewart *Combination Atlas Map of Logan County, Ohio*. **2.** This map was generated in ArcMap on August 20, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

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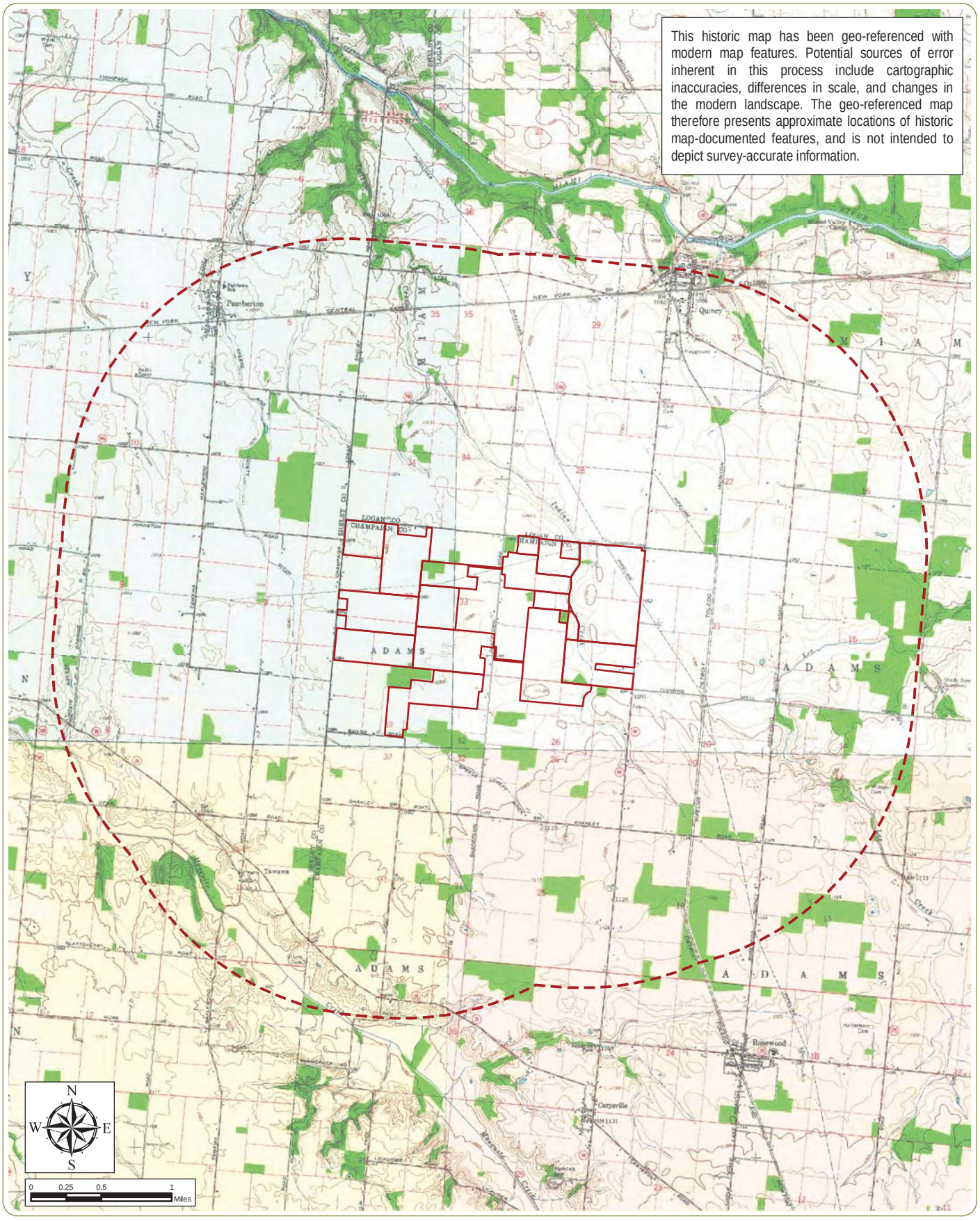

Clearview Solar Project

Adams Township, Champaign County, Ohio

Figure 7. 1962 *Port Jefferson, Ohio, and De Graff, Ohio* **USGS Topographic Quadrangles**

Notes: 1. Basemap: 1962 *Port Jefferson, Ohio, and De Graff, Ohio* USGS Topographic Quadrangles. **2.** This map was generated in ArcMap on August 20, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

Project Area

Cultural Resources Study Area

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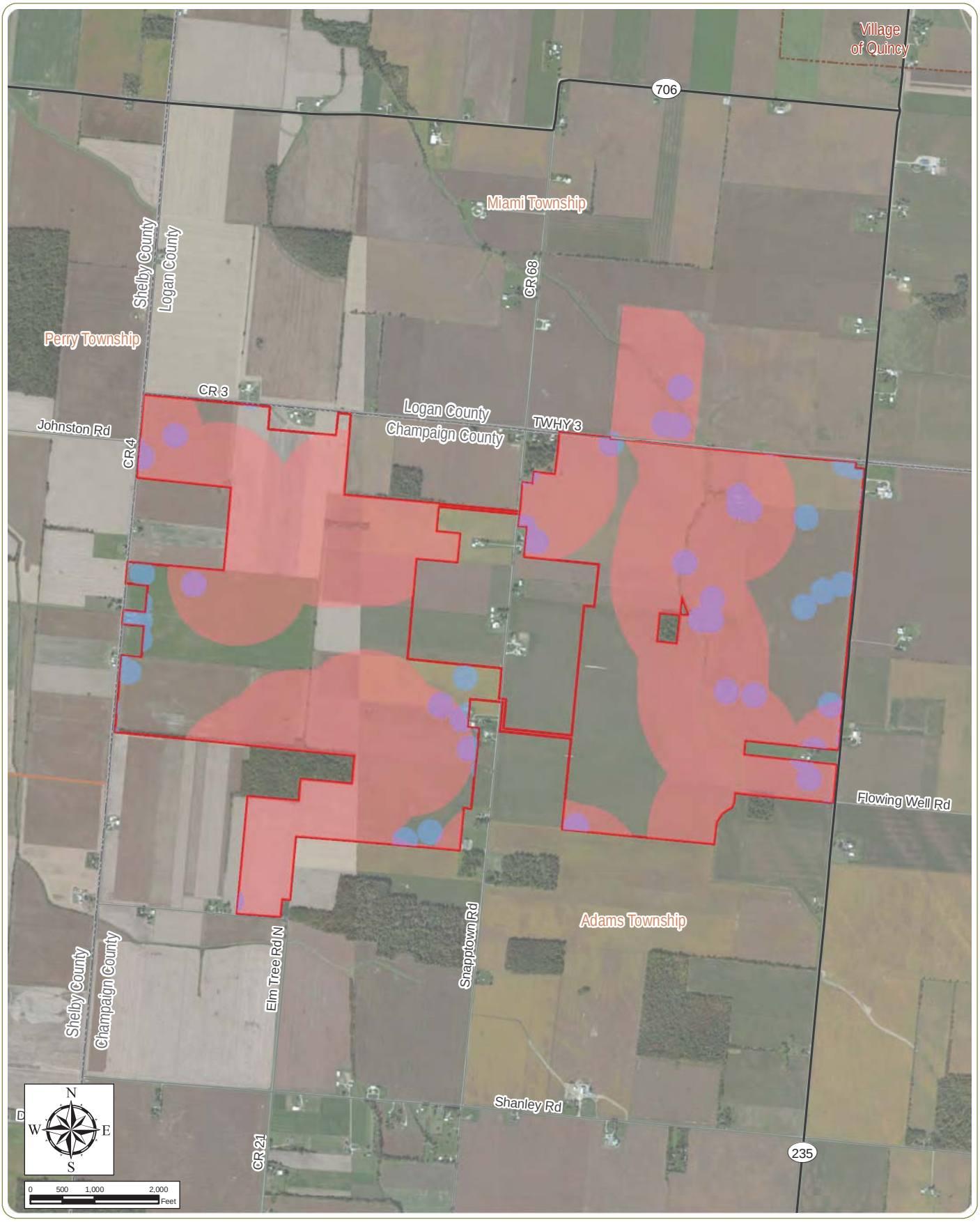

Clearview Solar Project

Adams Township, Champaign County, Ohio

Figure 8: Archaeology Sensitivity Model

Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. **2.** This map was generated in ArcMap on August 20, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Areas of Elevated Sensitivity for Pre-Contact Archaeological Material
- Areas of Elevated Sensitivity for Historic-Period Archaeological Material
- Areas of Elevated Sensitivity for Pre-Contact and Historic-Period Archaeological Material
- Project Area
- City/Village Boundary
- Township Boundary
- County Boundary

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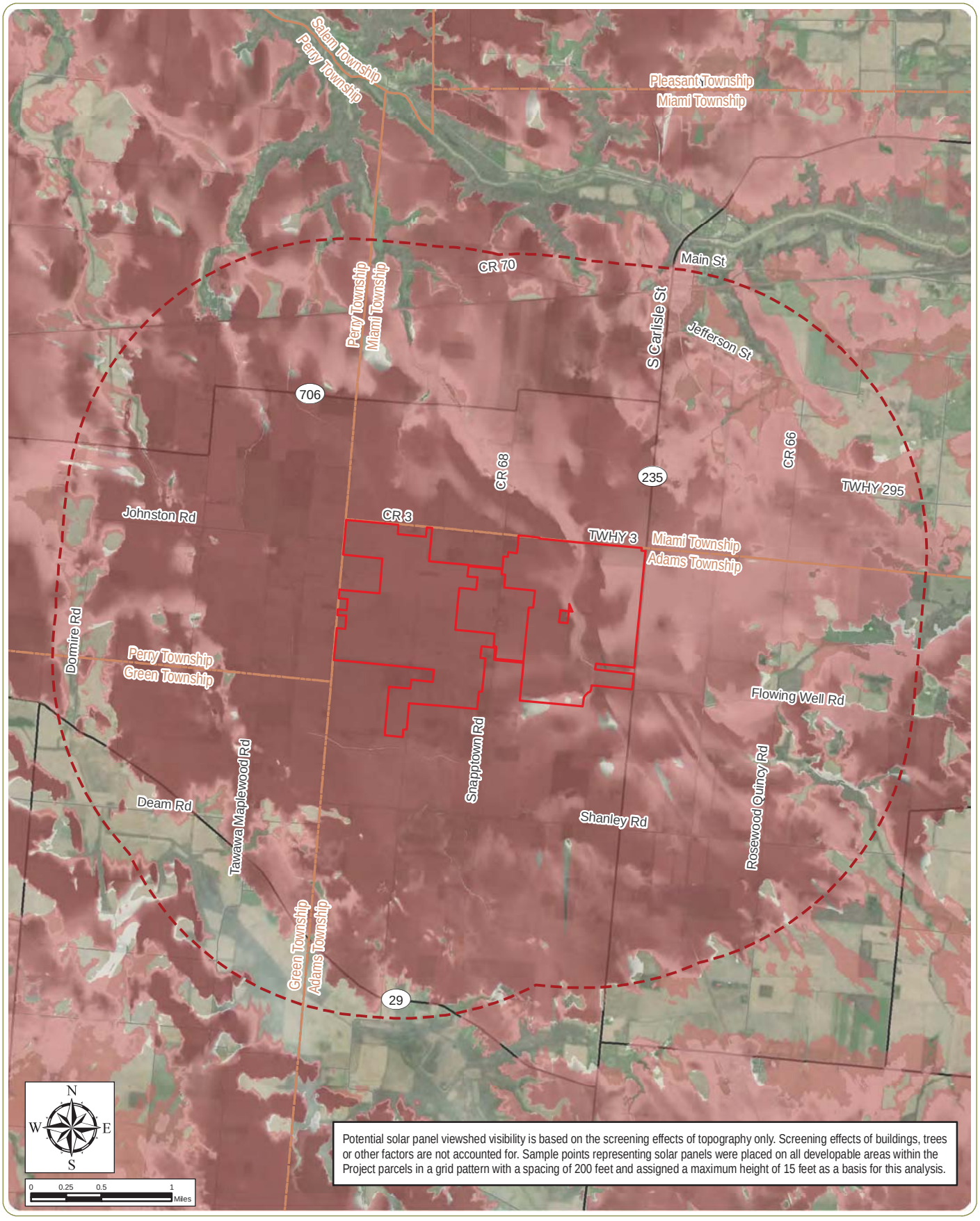

Clearview Solar Project

Adams Township, Champaign County, Ohio

Figure 9: APE for Indirect Effects

Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. **2.** This map was generated in ArcMap on August 20, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

Area of Potential Effect for Indirect (Visual) Effects

Project Area

Cultural Resources Study Area

Township Boundary

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Appendix A

Ohio Historic Inventory Structures within Cultural Resources Study Area

APPENDIX A. OHIO HISTORIC INVENTORY STRUCTURES WITHIN THE CULTURAL RESOURCES STUDY AREA CLEARVIEW SOLAR PROJECT

OHI ID	Place	Date	County	Property	Miles to Project Area
SHE0036810	Pemberton	1850	Shelby	Kenneth vanSkiver Farm	0.9
LOG0039811	Miami (Township of)	1925	Logan	12331 SR 706 (House)	0.9
SHE0036010	Pemberton	1860	Shelby	Jacob Kerns Farm	0.9
SHE0033214	Green (Township of)	1857	Shelby	Nicholas Dormire Farm	1.0
LOG0039911	Miami (Township of)	1870	Logan	Cost JM House	1.0
SHE0033414	Tawawa	1859	Shelby	Christian Dormire Farm	1.2
SHE0034214	Tawawa	1881	Shelby	Christian Church	1.4
SHE0034014	Tawawa	1860	Shelby	Doctor John C Leedom Farm	1.4
SHE0034114	Tawawa	1900	Shelby	Eagle Hall	1.4
SHE0033614	Tawawa	1870	Shelby	Palestine Dist School	1.4
SHE0034314	Tawawa	1840	Shelby	Wayside Inn	1.4
SHE0034414	Tawawa	1860	Shelby	Tawawa Hotel	1.4
SHE0034514	Tawawa	1850	Shelby	Tawawa Store	1.4
SHE0034614	Tawawa	1850	Shelby	Joshua Develvis	1.4
SHE0034714	Tawawa	1860	Shelby	Hageman Grocery	1.4
SHE0033314	Tawawa	1865	Shelby	Daniel Brautigam Farm	1.5
LOG0038511	Quincy	1885	Logan	Brown James P House	1.6
SHE0037210	Pemberton	1875	Shelby	Daniel Vandemark House	1.7
SHE0037010	Pemberton	1857	Shelby	Pemberton United Methodist Church	1.7
SHE0037510	Pemberton	1870	Shelby	Clarence Piper House	1.7
SHE0039310	Pemberton	1882	Shelby	Perry Twp Hall	1.7
LOG0038411	Quincy	1840	Logan	Retter Levi House	1.7
LOG0039511	Quincy	1870	Logan	Quincy Lumber Company	1.7
LOG0037611	Quincy	1860	Logan	SR 235 (Carlisle) (House)	1.8
LOG0039411	Quincy	1900	Logan	Quincy Depot	1.8
SHE0031610	Pemberton	1874	Shelby	Pemberton Regular Baptist Church	1.8
LOG0037511	Quincy	1910	Logan	Morgan Tower	1.9
LOG0038711	Quincy	1850	Logan	Railroad Store	1.9
SHE0037110	Pemberton	1923	Shelby	Pemberton Elementary School	1.9
LOG0038611	Quincy	1875	Logan	Quincy Elevator	1.9
LOG0038311	Quincy	1925	Logan	Sinclair Gasoline Station	1.9
SHE0036910	Pemberton	1884	Shelby	Unity Grange #2105	1.9
SHE0036110	Pemberton	1880	Shelby	Jerry Cron H Farm	1.9
LOG0039011	Quincy	1860	Logan	112 South St (House)	2.0
LOG0039111	Quincy	1860	Logan	South St (House)	2.0
LOG0039211	Quincy	1910	Logan	Reeder Riggen-Madden Funeral Home	2.0
LOG0039311	Quincy	1900	Logan	W South St (House)	2.0
SHE0037310	Pemberton	1880	Shelby	Uri M Stiles House	2.0
LOG0038111	Quincy	1915	Logan	105 N Main St (House)	2.0
LOG0038811	Quincy	1880	Logan	Riverside Elementary	2.0

LOG0038911	Quincy	1897	Logan	United Methodist Church	2.0
LOG0037911	Quincy	1890	Logan	Thacker Realty	2.0
LOG0038011	Quincy	1875	Logan	Stotters Carryout	2.0
LOG0038211	Quincy	1890	Logan	Quincy Trading Post	2.0
LOG0037711	Quincy	1870	Logan	106 W Main St (House)	2.0
LOG0037811	Quincy	1858	Logan	Storage	2.0

Summary: Application - Part 23 of 31 Ex. S Phase 1A Cultural Resources Survey electronically filed by Christine M.T. Pirik on behalf of Clearview Solar I, LLC