

LETTER OF NOTIFICATION FOR THE

Duke Energy Ohio, Inc.

Port Union to Mulhauser Rebuild Project

PUCO Case No. 20-0346-EL-BLN

Submitted to:

The Ohio Power Siting Board

Pursuant to OAC 4906-06

Submitted by:

Duke Energy Ohio, Inc.

February 2020



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LETTER OF NOTIFICATION

This Letter of Notification has been prepared by Duke Energy Ohio, Inc. (hereafter "Duke Energy Ohio") in accordance with Ohio Administrative Code (OAC) Section 4906-6-05 for the review of Accelerated Certificate Applications for the Duke Energy Ohio Port Union to Mulhauser Rebuild Project (Project). The following sections correspond to the administrative code sections for the requirements of a Letter of Notification.

4906-6-05(B) GENERAL INFORMATION

4906-6-05(B)(1) Project Description

The name of the project and applicant's reference number, names and reference number(s) of resulting circuits, a brief description of the project, and why the project meets the requirements for a Letter of Notification application.

Name of Project:

Duke Energy Ohio Port Union to Mulhauser Rebuild Project

Reference Numbers:

PUCO Filing Number:	The Project has been assigned Public Utilities Commission of Ohio (PUCO) Case Number 20-0346-EL-BLN.
PJM Number:	The PJM baseline project number is b2901.
2019 LTFR:	The Project is on pages 62 of Duke Energy Ohio's filing of the 2019 Long-Term Forecast Report (LTFR).
Circuit Reference:	This relates to the Port Union – Mulhauser lines; referred to herein as Circuits 3886 and 3885.

Brief Description of the Project:

The Project involves the removal and replacement of approximately 2.75 miles of 138-kV transmission line between the existing Port Union Substation to the Mulhauser Substation, located in the City of Fairfield and West Chester Township, Butler County, Ohio. The proposed Project area consists of approximately 2.75 miles of existing 100-foot wide Duke Energy Ohio transmission line corridor right of way (ROW) and includes the replacement of fifteen (15) galvanized steel lattice structures and one (1) wooden pole with 14 Double Circuit Steel Monopoles and three (3) Single Circuit Steel Monopoles with concrete foundations. The Port Union to Mulhauser Rebuild Project initiates at the Duke Energy Ohio Mulhauser Substation, located south of Muhlhauser Road, north of West Crescentville Road, and east of Dixie Highway (SR4) (39.308443, -84.486188) and terminates at the Duke Energy Ohio Port Union Substation located north of the Rialto Road and Port Union Road intersection (39.31511, -84.48787). The new monopoles' above-ground height will range from 110 to 160 feet. The new conductor will be installed on Circuit 3886 and will be placed to the new structures. Three segments of new conductor will also be installed on Circuit 3885; the new

conductor will not increase capacity on this circuit, the remaining segments of existing conductor on Circuit 3885 will be transferred to the new structures.

Letter of Notification Requirement:

This Project qualifies for a Letter of Notification filing because it meets the requirements of OAC 4906-1-01, Appendix A, item (2)(b), *Application Requirement Matrix for Electric Power Transmission Lines*:

2. *Adding new circuits on existing structures designed for multiple circuit use, replacing conductors on existing structures with larger or bundled conductors, adding structures to an existing transmission line, or replacing structures with a different type of structure, for a distance of:*

(b) More than two miles.

4906-6-05(B)(2) Statement of Need

If the proposed project is an electric power transmission line or gas or natural gas transmission line, a statement explaining the need for the proposed facility.

The Project involves the removal of fifteen (15) galvanized steel lattice structures and one (1) wooden pole and the installation of 14 Double Circuit Steel Monopoles and three (3) Single Circuit Steel Monopoles with concrete foundations. The purpose of the Project is to maintain and improve the quality of the electric service and reliability to the service area. This area includes, but is not limited to Butler County, Ohio. The existing 2.75-mile Port Union to Mulhauser line provides 138 kV electric transmission service to residential and commercial/industrial facilities and serves as a pathway in the transmission grid between West Chester Township, the City of Fairfield, and surrounding areas. This Project solves a North American Electric Reliability (NERC) violation to allow the circuits to operate at base case contingency condition and improve reliability to limit customer load being disrupted.

The rebuilt transmission line will continue to provide the service area with 138-kV transmission service but will be rebuilt with upgraded conductor capacity to enable more efficient future voltage conversion, relieve loading and improve reliability on nearby circuits, and allow support for future load growth in the area.

4906-6-05(B)(3) Project Location

The applicant shall provide the location of the project in relation to existing or proposed lines and substations shown on an area system map of sufficient scale and size to show existing and proposed transmission facilities in the Project area.

The location of the Project is depicted in Attachment A: Figures 1 and 2. Figure 1 shows the Project's general vicinity depicted on a United States Geological Survey (USGS) quadrangle topographic map. Figure 2 depicts the planned transmission line location, associated GIS layers, and additional details depicted on an aerial imagery map.

The location of the Project in relationship to existing transmission lines and substations is shown on Figure 3. The Port Union Substation supports circuits associated with this Project (3886 and 3885); however, there are numerous other transmission line circuits and distribution lines that enter and exit the Port Union Substation and are in close proximity to the proposed Project. At the Mulhauser Substation connection of this Project there is one transmission circuit not associated with the project and there are distribution circuits in the area. Circuit 3886 and 3885 enter and exit the Mulhauser Substation.

4906-6-05(B)(4) Alternatives Considered

The applicant shall describe the alternatives considered and reasons why the proposed location or route is best suited for the proposed facility. The discussion shall include, but not be limited to, impacts associated with socioeconomic, ecological, construction, or engineering aspects of the project.

The proposed Project will occur entirely within existing Duke Energy Ohio ROW. No additional long-term impacts to adjacent properties are anticipated as a result of the Project. Therefore, the current alignment is the only reasonable alternative available and no alternatives were considered.

4906-6-05(B)(5) Public Information Program

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

Property owners within 150 feet of the work will be notified by mail prior to the initiation of any construction. In addition, notice of this filing will be sent to libraries, property owners, and affected tenants, and will be published in a newspaper of general circulation in the Project area, as required by Board rules. Information on the ongoing status of this Project and other Duke Energy Ohio projects can be found at the following website: <https://www.duke-energy.com/our-company/about-us/electric-transmission-projects>.

4906-6-05(B)(6) Construction Schedule

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

Vegetation clearing for this Project is scheduled to begin on or about May 21, 2020. Foundations for the new structures are scheduled to be installed on or about July 1 through September 30, 2020.

Duke Energy Ohio is proposing the construction of the project to begin on or about October 1, 2020, and to be completed and the line energized on or about June 30, 2021.

4906-6-05(B)(7) Area Map

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

Figures 1 and 2 in Attachment A – Figures, depict the general location of the Project. Figure 1 depicts the general Project vicinity depicted on an USGS quadrangle topographic map. Attachment A, Figure 2 depicts the planned transmission line location on an aerial imagery, associated GIS layers, and additional features in the Project vicinity.

Figure 3 depicts the existing and proposed facilities at 1:24,000 on an aerial imagery map.

4906-6-05(B)(8) Property Agreements

The applicant shall provide a list of properties for which the applicant has obtained easements, options, and/or land use agreements necessary to construct and operate the facility and a list of the additional properties for which such agreements have not been obtained.

The proposed Project is located within existing ROW easements that were already held by Duke Energy Ohio. Other alternative routes were not considered because the Project was able to take advantage of existing easements and avoid further impacts to ecological resources and properties along the Project corridor.

4906-6-05(B)(9) Technical Features

The applicant shall describe the following information regarding the technical features of the project:

Duke Energy Ohio proposes to remove and replace fifteen (15) galvanized steel lattice structures and one (1) wooden pole with fourteen (14) engineered Double Circuit Steel Monopoles and three (3) Single Circuit Steel Monopoles structures with concrete foundations in the City of Fairfield and West Chester Township, Butler County, Ohio. The steel monopoles will range from 110 to 160 feet tall. New 138-kV conductor will be installed for the entire Project length on Circuit 3886 from Port Union Substation to Mulhauser Substation. The second 138-kV transmission line (Circuit 3885) will be transferred to the new structures for the majority of the Project area; however, there are three segments of Circuit 3885 where new transmission line will need to be installed. Due to the location of the new poles, there are segments of the Circuit 3885 138-kV transmission line that will need to be reconducted to avoid splicing the line. The new conductor on Circuit 3885 transmission line is located from HL-143 to HL-144, HL-149J to HL151B, and HL155 to Port Union Substation. Replacing the transmission line on Circuit 3885 improves the reliability of the line versus installing multiple splices in the existing line but does not increase the capacity of the circuit.

4906-6-05(B)(9)(a) Operating Characteristics

Operating characteristics, estimated number and types of structures required, and right-of-way and/or land requirements.

Circuit 3886:

Voltage:	138 kV
Structure Type:	14 Double Circuit Steel Monopoles; 2 Single Circuit Steel Monopoles
Conductors:	Three (3) 954 ACSS/TW "Cardinal"
Static Wire:	One (1) 159 KCMIL 12/7 ACSR or equivalent
Insulators:	138 kV glass insulators
ROW:	Existing Easement

Circuit 3885:

Voltage:	138 kV
Structure Type:	Second Circuit on 14 Double Circuit Steel Monopoles w/ F3886; 1 Single Circuit Steel Monopole
Conductors:	Existing three (3) 565 ACSS/TW "Calumet" to be transferred with the exception of the following spans: <ul style="list-style-type: none"> • HL143 - HL144 (1,055') Three (3) 954 ACSS/TW "Cardinal" • HL149J - HL 151B (738') Three (3) 954 ACSS/TW "Cardinal" • HL155 - Port Union Sub (1500') Three (3) 954 ACSS/TW "Cardinal"
Static Wire:	One (1) 159 KCMIL 12/7 ACSR or equivalent
Insulators:	138 kV glass insulators
ROW:	Existing Easement

4906-6-05(B)(9)(b) Electric and Magnetic Fields

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

Duke Energy Ohio designs its facilities according to the National Electric Safety Code (NESC), at a minimum. The structure height and configuration was chosen based on the NESC engineering parameters, and cost.

Electric and Magnetic Field (EMF) calculations were taken at the edge of Right-of-Way (EROW), assumed 50 feet from the pole center line, for a midspan cross-section in the vicinity of the two steel poles (HL153 and HL154). This is the area in the vicinity of the apartment complex located north of Muhlhauser Road. The electric fields were calculated at an operating voltage of 145 kV (5% above nominal phase-to-phase voltage of 138kV) at directly beneath the line to the EROW at 50 feet. An additional consideration taken into account is that, in the area around the apartments, there is an additional 50-foot easement, to the west of the 138kV easement, in which there are 69kV and 12 kV lines.

Calculations were made for all three load scenarios, per OPSB requirements. Results of the EMF calculation study can be found in the table below:

EMF Calculations						
Condition	F3886 Circuit Load (Amps)	F3885 Circuit Load (Amps)	Electric Field (kV/m) Edge of ROW	Magnetic Field (mG) Edge of ROW	Electric Field (kV/m) Peak Inside ROW	Magnetic Field (mG) Peak Inside ROW
(1) Normal Maximum Loading	309	179	0.20	42.48	0.42	53.38
(2) Emergency Line Loading	2179	1414	0.24	100.67	0.42	129.04
(3) Winter Normal Conductor Rating	2179	1414	0.24	100.67	0.42	129.04
EMF Level Calculated one meter above ground assuming balanced currents and voltage.						

The two main issues for consideration, in terms of EMF impact, are human exposure and interference (EMI). Based on the calculated values, human Maximum Permissible Exposure (MPE) values are easily met even directly beneath the line, and the field levels fall off rapidly beyond the ROW. With respect to magnetic field interference, Alternating Current (AC) magnetic fields rarely cause interference with typical residential, office or retail uses, especially at the calculated levels detailed above. Based on the calculated EMF values, no impacts are expected from the 3886 and 3885 circuit reconfiguration with respect to exposure or interference.

4906-6-05(B)(9)(c) Project Cost

The estimated capital cost of the project.

The estimated cost for the Project is approximately \$6.0 Million.

4906-6-05(B)(10) Social and Ecological Impacts

The applicant shall describe the social and ecological impacts of the project:

4906-6-05(B)(10)(a) Land Use Characteristics

Provide a brief, general description of land use within the vicinity of the proposed project, including a list of municipalities, townships, and counties affected.

The Project is located in the City of Fairfield and West Chester Township, Butler County, Ohio. The City of Fairfield, which covers about 21 square miles, contained a population of 42,100 people based on 2016 census data. West Chester Township, which covers about 35.5 square miles,

contained a population of 60,598 people based on 2010 census data. The land use immediately surrounding the Project Area is predominantly maintained ROW/oldfield, urban turf/impervious surfaces, agricultural land, emergent wetland, and emergent/scrub-shrub wetland complex.

4906-6-05(B)(10)(b) Agricultural Land Information

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

Approximately 0.7 acres of agricultural land (Parcel No. M5610001000003) is located immediately south of Muhlhauser Road, within the existing ROW. No impacts to the agricultural land are anticipated by activities associated with the Project. Coordination with Herold Baxter with the Butler County Auditor's Office, on January 23, 2020, confirmed the parcel was not classified as agricultural district land. A copy of the agency coordination letter with the Butler County Auditor's Office is included in Attachment C – Agency Coordination Letters.

4906-6-(B)(10)(c) Archaeological and Cultural Resources

Provide a description of the applicant's investigation concerning the presence or absence of significant archaeological or cultural resources that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

The online mapping system of the Ohio Historic Preservation Office (OHPO) was consulted to identify previously recorded cultural resources within 1.6 km (one-mile) of the Study Area (one-mile buffer). The OHPO records check indicates that thirty-nine (39) archaeological sites, twenty-seven (27) historic structures, one (1) cemetery, two (2) individually listed National Register of Historic Places (NRHP) resources, and one (1) NRHP-listed historic district have been previously recorded in the one-mile buffer. None of the resources is located within the Project Area; however, two (2) resources are located approximately 7 m (23 ft) west of the Project area: the Stewart House (OHI BUT0162214) and NRHP-listed Miami-Erie Canal Site historic district (NPS Ref. No 78002016). Both of these resources are located outside the area where subsurface disturbance associated with the Project will occur; therefore, they will not be directly impacted by Project activities. In addition, the Project plans indicate the transmission tower being replaced adjacent to the Miami-Erie Canal Site will be removed and replaced in its current location and new transmission line will be installed in the existing transmission corridor, resulting in no new indirect impacts. The Stewart House has been previously determined not to be significant. Table 1-1 lists cultural resources located within the one-mile buffer.

The majority of the Project Area has not been previously investigated for cultural resources and eighteen (18) cultural resource investigations have previously been conducted within 1.6 km (1 mi) of the Project area, two of which are located within small portions of the northern terminus of the current Project area. Prior disturbance has occurred in large portions of the study area, resulting from the construction of adjacent buildings, an adjacent railroad line, gravel parking areas, and existing transmission pole structures. Due to the previously disturbed soils and limited amount of ground disturbance related to the removal of existing transmission structures and installation of new transmission pole structures in the same location, no archaeological reconnaissance is recommended.

4906-6-05(B)(10)(d) Local, State, and Federal Agency Correspondence

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

A National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Storm Water will be submitted in March 2020 to the Ohio Environmental Protection Agency (OEPA), as the Project will have over an acre of ground disturbance.

A permit to the Ohio Department of Transportation District 8 will be submitted in March 2020 for a temporary construction entrance and required access located west of SR 747 (Figure 2.05).

A Driveway Permit will be submitted in March 2020 to the Butler County Engineer's Office for the temporary construction entrance located north of Muhlhauser Road (Figure 2.09).

An Earth Moving Erosion and Sediment Control (ESC) permit is not required by the Project, per coordination with the Butler County Stormwater District on September 10, 2019. A copy of the agency coordination letter is included in Attachment C – Agency Coordination Letters.

No impacts to the four (4) identified wetlands or seven (7) identified streams are anticipated by the Project. If minor impacts are deemed necessary during construction activities, stream crossings will be constructed within the regulatory limits outlined under the non-reporting Nationwide Permit 3 “*Maintenance*” from the US Army Corps of Engineers (USACE). No pre-construction notification is required based on the potential for less than 300 linear feet of impact to streams within the Project area.

One 100-year floodplain was identified within the Project area (refer to Attachment A – Figures, Figure 2.11-2.14). A Floodplain Hazard Area Development Permit from Butler County is not required for major utility facilities permitted by the Ohio Power Siting Board under Section 4906 of the Ohio Revised Code, per Section 4.2 Line 3 of the Butler County Flood Damaged Prevention Regulations (Appendix B).

Duke Energy Ohio has used the Federal Aviation Administration (FAA) “notice criteria tool” to determine if further coordination is required for the Project to verify there is not an impact to navigable airspace. Based on the results of the FAA notice criteria tool, Duke Energy Ohio coordinated with FAA on each proposed structure location. The FAA has only requested that Duke Energy Ohio contact FAA once structure 46BT-616 (adjacent to Mulhauser Substation) is installed.

No other local, state, or federal permit or other authorizations are required or anticipated for the Project.

4906-6-05(B)(10)(e) Threatened, Endangered, and Rare Species

Provide a description of the applicant's investigation concerning the presence or absence of federal and state designated species (including endangered species, threatened species, rare species, species proposed for listing, species under review for listing, and species of special interest) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

Several sources of information were consulted to further define the potential habitat of listed species that occur within the county of the Project. Attachment C – Agency Coordination Letters, contains a list of the Rare, Threatened and Endangered (RTE) species known to occur within Butler County and their potential to occur within the Project area, based on their habitat requirements and observations during the field survey.

Coordination with the U.S. Fish and Wildlife Service (USFWS) and the Ohio Department of Natural Resources Division of Wildlife (ODNR-DOW) was initiated on August 29, 2019. The correspondence from USFWS indicated that there are no verified records of federally listed endangered, threatened, or candidate species, or their habitats, existing within the Project area or vicinity (Attachment C). A response from ODNR-DOW was received on January 21, 2020. ODNR-DOW indicated the Project falls within the range of Indiana bat (*Myotis sodalis*, state and federally endangered), rayed bean (*Villosa fabalis*, state and federally endangered), fawnsfoot (*Truncilla donaciformis*, state threatened), Kirtland's snake (*Clonophis kirtlandii*, state threatened), cave salamander (*Eurycea lucifuga*, state endangered), and upland sandpiper (*Bartramia longicauda*, state endangered). A copy of the USFWS and ODNR-DOW response letters are included in Attachment C – Agency Coordination Letters.

The Project Aarea was field surveyed by Cardno, Inc. (Cardno), as part of contracted services to assess ecological impacts. This included habitat assessments to identify RTE species and their habitat, specifically Indiana bat and northern long-eared bat roost trees. Based on Cardno's field inspection, the Project area consisted of maintained ROW/oldfield, urban turf/impervious surfaces, agricultural land, emergent wetland, and emergent/scrub-shrub wetland complex. No trees with characteristic habitat indicators of primary maternity roost trees were identified within the Project area. No perennial streams characteristic of mussel habitat were identified within the Project area. No Kirtland's snake, cave salamander, or upland sandpiper habitat was identified within the Project area.

4906-6-05 B(10)(f) Areas of Ecological Concern

Provide a description of the applicant's investigation concerning the presence or absence of areas of ecological concern (including national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

Duke Energy Ohio had Cardno conduct an investigation for areas of ecological concern within the Project Area. As a part of Cardno's investigation, a request was submitted to the ODNR Environmental Review Services and USFWS on November 5, 2019, to research the presence of any unique ecological sites, geological features, animal assemblages, scenic rivers, state wildlife area, nature preserves, parks or forest, national wildlife refuges, or other protected areas within one (1) mile of the Project, using the ODNR Natural Heritage Database. The USFWS response was received on September 11, 2019. A response from ODNR-DOW was received on January 21, 2020. A copy of the USFWS and ODNR-DOW response letters are included in Attachment C – Agency Coordination.

Cardno conducted a wetland delineation and stream assessment of the Project Area. Cardno's investigation included approximately 33.4 acres along the proposed centerline, access roads, and additional workspace areas. During the investigation, Cardno identified a total of two (2) emergent wetlands (Wetland 1 and Wetland 4), two (2) emergent/scrub-shrub wetland complexes (Wetland 2 and Wetland 3), seven (7) intermittent streams (Streams 2-8), and one (1) perennial stream (Stream 1). See Attachment D, Regulated Waters Delineation Report.

The proposed construction access plan, as shown in Attachment A – Figures, Figures 2.01 to 2.14, was developed by Cardno to avoid and/or minimize disturbance to all streams and wetlands. No impacts to regulated wetlands, streams, or RTE habitat are anticipated by the Project.

Cardno also identified 100-year floodplains using the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer within the Project area. One 100-year floodplain was identified within the Project area (refer to Attachment A – Figures, Figures 2.11-2.14). A Floodplain Hazard Area Development Permit from Butler County is not required for major utility facilities permitted by the Ohio Power Siting Board under Section 4906 of the Ohio Revised Code per Section 4.2 Line 3 of the Butler County Flood Damage Prevention Regulations (Appendix B).

4906-6-05 B(10)(g) Unusual Conditions

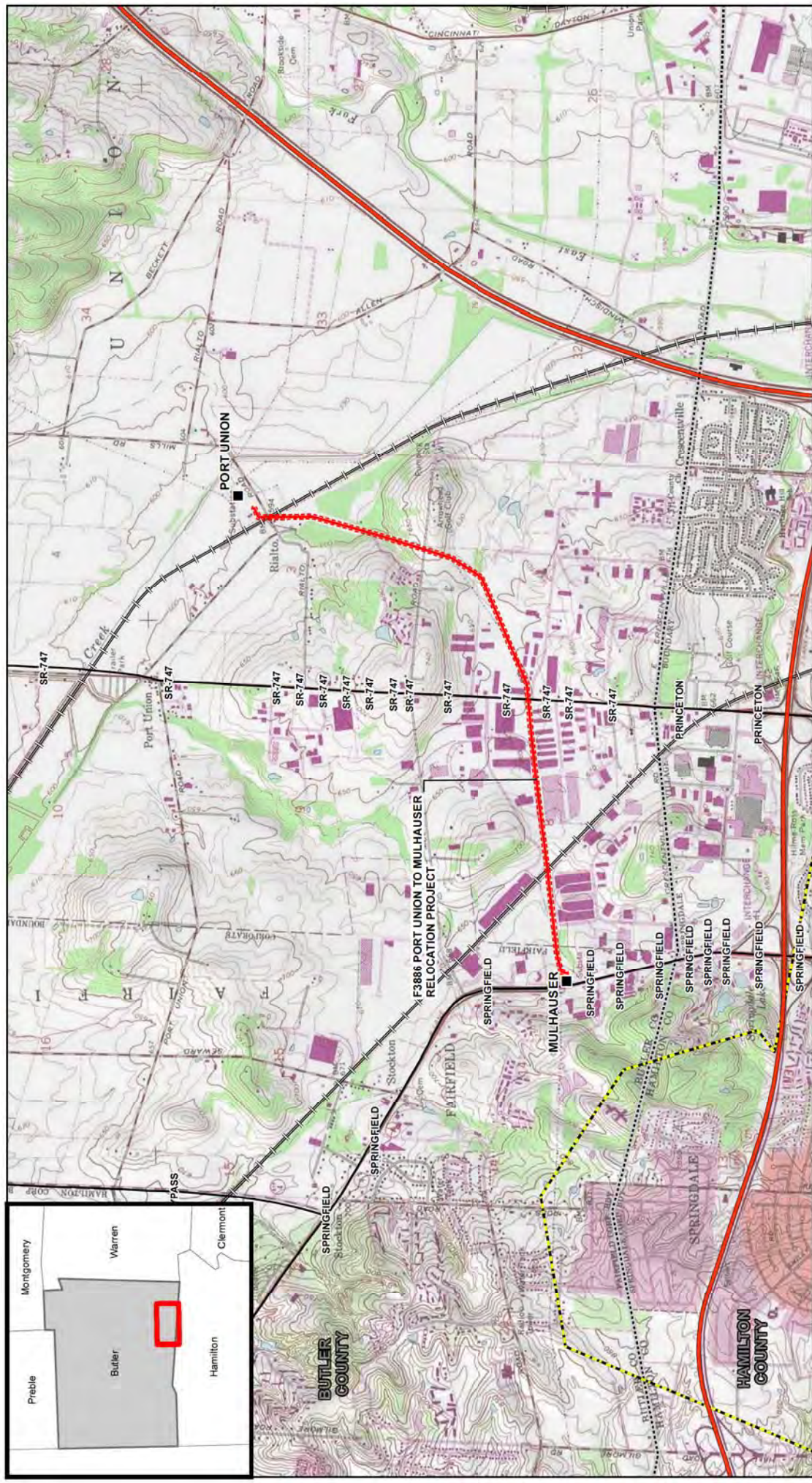
Provide any known additional information that will describe any unusual conditions resulting in significant environmental, social, health, or safety impacts.

To the best of Duke Energy Ohio's knowledge, no unusual conditions exist that would result in environmental, social, health, or safety impacts. Construction and operation of the proposed Project will meet all applicable safety standards established by the Occupational Safety and Health Administration, and will be in accordance with the requirements specified in the latest revision of the National Electric Code as adopted by the PUCO.

4906-6-07 DOCUMENT OF LETTER OF NOTIFICATION TRANSMITTAL AND AVAILABILITY FOR PUBLIC REVIEW

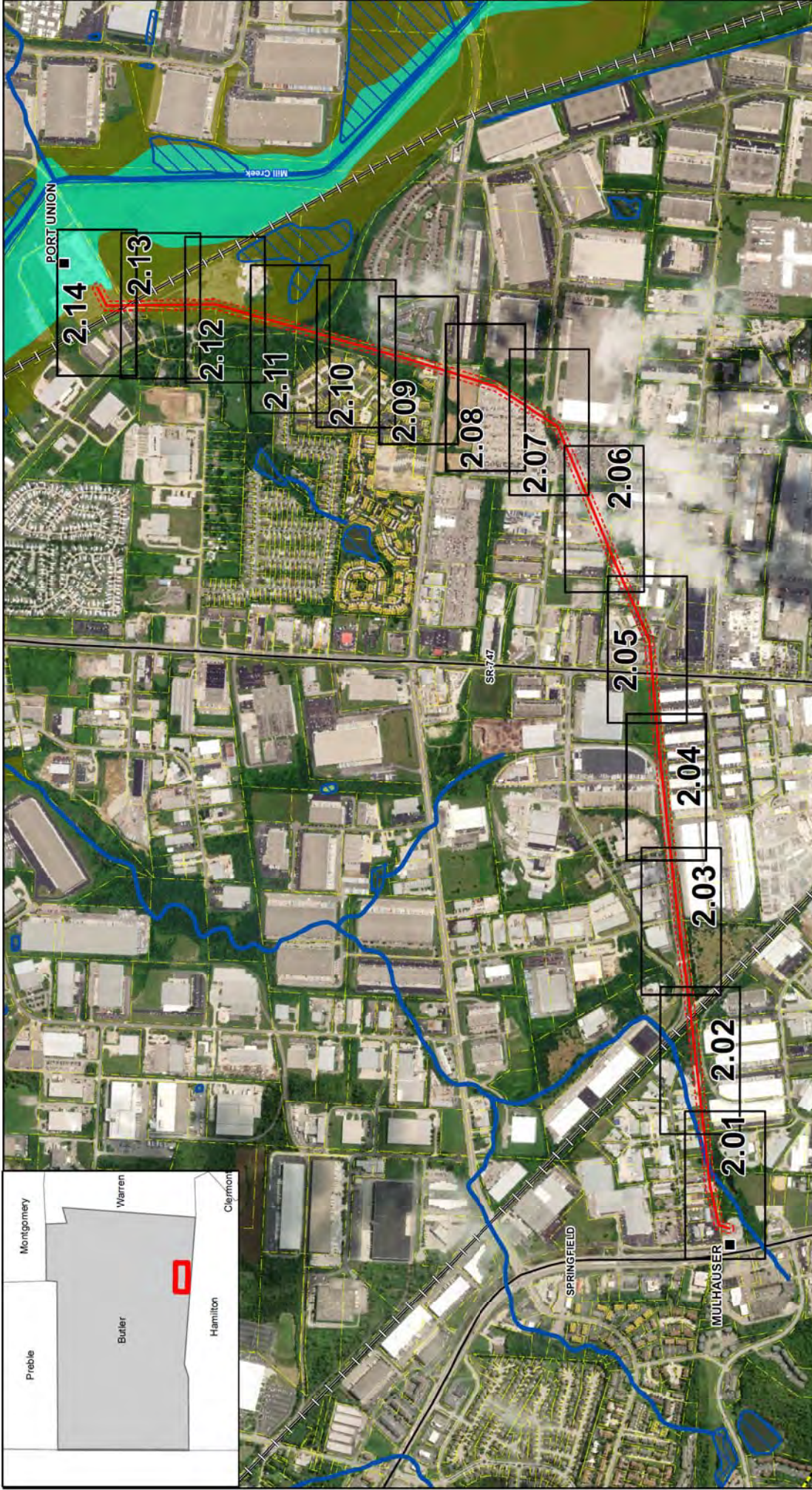
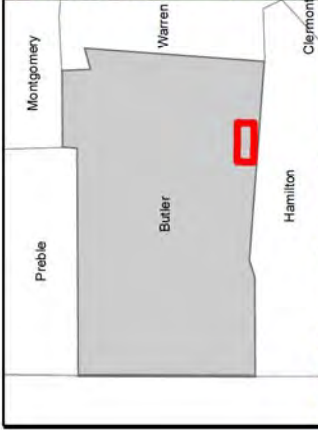
Copies of the Letter of Notification have been sent to the appropriate public officials for Butler County, the City of Fairfield, West Chester Township, MidPointe Library West Chester, and Fairfield Lane Library.

Attachment A – Figures



	<p>REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE GLENDALE, OHIO, OBTAINED FROM USGS NATIONAL GEOSPATIAL ARCHIVE, ACCESS DATE 01/2017.</p>	<p>Existing Facility Interstate State Highway US Highway</p>	<p>Municipal Boundary Project Centerline 100-ft Corridor County Boundary</p>	<p> </p>	<p>FIGURE 1 PROJECT VICINITY MAP F3886 PORT UNION TO MULHAUSER RELOCATION PROJECT OPSB BLN FILING</p>	
					<p>DUKE ENERGY OHIO</p>	
<p>BUTLER COUNTY, OH</p>		<p>DRAWN BY: SKL CHECKED: CAJ</p>		<p>DATE: 2/18/2020 APPROVED: CAJ</p>		

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REFERENCE: USGS 7.5 TOPOGRAPHIC
QUADRANGLE: GLENDALE, OHIO, OBTAINED
FROM USGS, NATIONAL GEOGRAPHIC
TOPO, AND USGS, ACCESSSED 01/2017.

- | | | | |
|-------------------|--------------------|---------------------|--------------|
| Existing Facility | US Highway | Parcels | NWI Wetlands |
| Interstate | Railroad | Municipal Boundary | Sheet Index |
| NHD Flowline | Project Centerline | Floodway | |
| State Highway | 100-ft Corridor | 100-year Floodplain | |



FIGURE 2
ENVIRONMENTAL ACCESS PLAN KEY MAP
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
OPSB BLN FILING
DUKE ENERGY OHIO

DRAWN BY: SKL
CHECKED: CAJ
DATE: 2/18/2020
APPROVED: CAJ



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FIGURE 2.01
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

DRAWN BY: COD
CHECKED: CAJ
DATE: 2/18/2020
APPROVED: CAJ

0 50 100 Feet

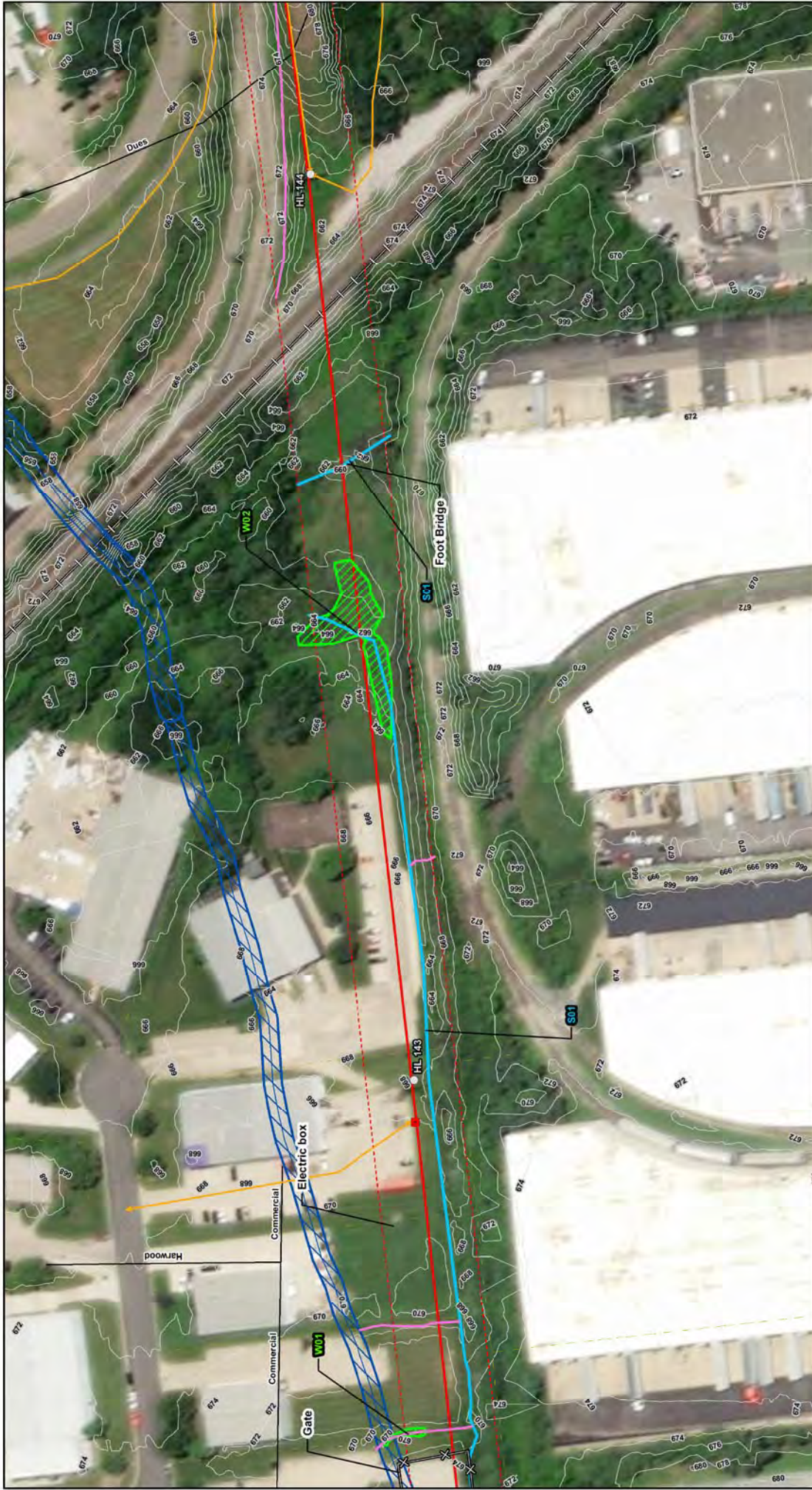
<p>Existing Structure</p> <p>Proposed Structure</p> <p>Culvert</p> <p>Stormwater Inlet</p> <p>Ditch</p>	<p>Fence Line</p> <p>Delineated Stream</p> <p>Alternate Access</p> <p>Potential Access</p> <p>Delineated Wetland</p>	<p>Delineated Pond</p> <p>Existing Facility</p> <p>Interstate</p> <p>NHD Flowline</p> <p>State Highway</p>	<p>US Highway</p> <p>NW Wetlands</p> <p>Railroad</p> <p>Project Centerline</p> <p>2-ft Contour</p>	<p>100-ft Corridor</p> <p>Parcels</p> <p>Municipal Boundary</p> <p>Floodway</p> <p>100-year Floodplain</p>
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REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE GLENDALE, OHIO, OBTAINED FROM USGS NATIONAL GEOSPATIAL ARCHIVE, DATE 01/2017.

PROJECT LOCATION

BUTLER COUNTY, OH

R:\Projects\1511561156720M_DukeEnergy\1531M99_SOW56_TOH194101_Mulhauser\GIS\MXD\OPSPSB2_Environmental Access Plan set.mxd



PROJECT LOCATION

BUTLER COUNTY, OH

REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE: GLENDALE, OHIO, OBTAINED FROM USGS, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSSED 01/2017.

FIGURE 2.02
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

DUKE ENERGY

Cardno

Legend

Existing Structure	Proposed Structure	Culvert	Stormwater Inlet	Ditch
Delimited Pond	Delimited Stream	Alternate Access	Potential Access	Delimited Wetland
US Highway	NM Wetlands	Railroad	Project Centerline	2-ft Contour
100-ft Corridor	Parcels	Municipal Boundary	Floodway	100-year Floodplain

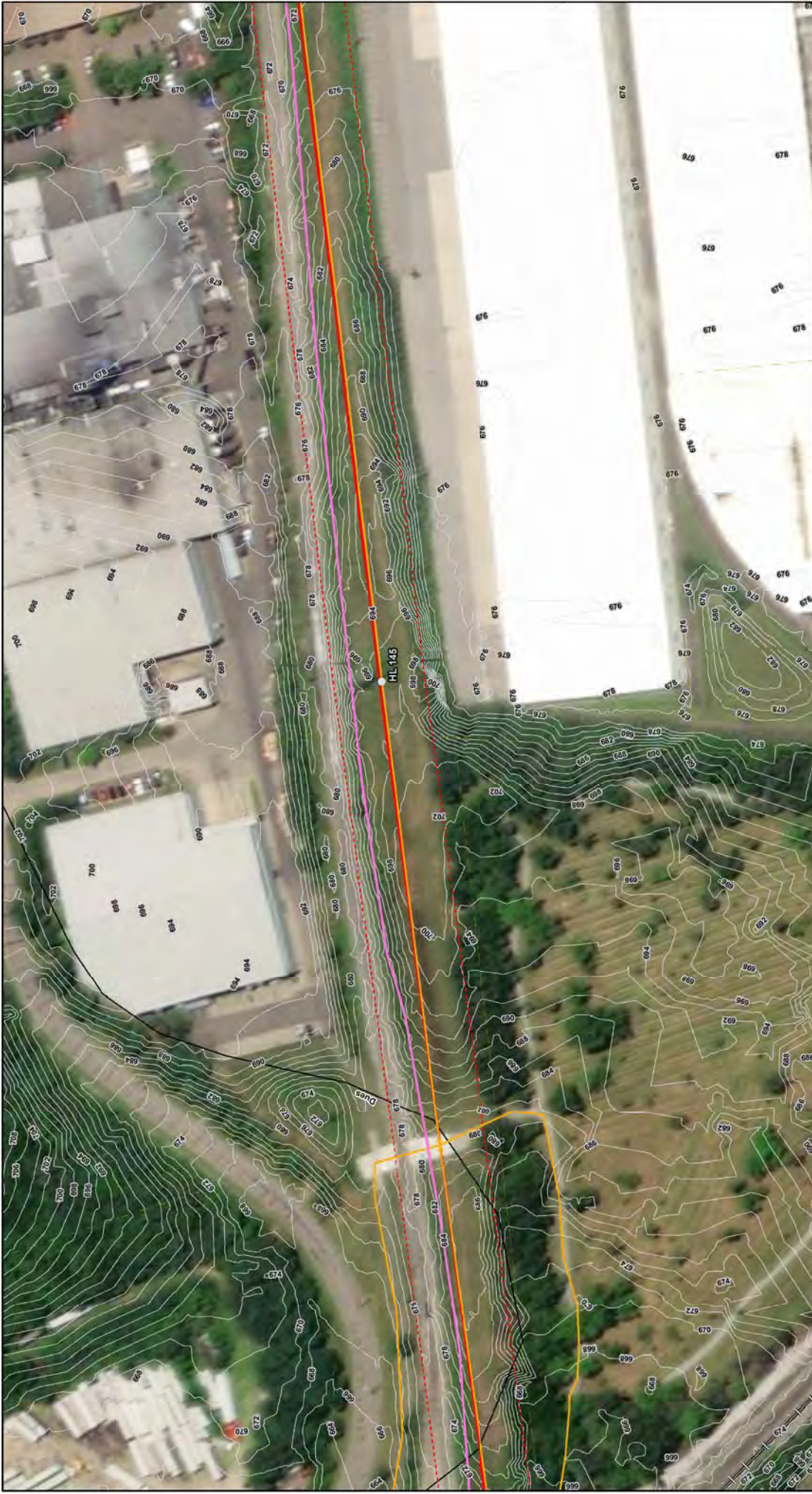
Scale

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PROJECT LOCATION

REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE: GLENDALE, OHIO, OBTAINED FROM USGS NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSSED 01/2017.

Existing Structure	Fence Line	Delimited Pond	US Highway	100-ft Corridor
Proposed Structure	Delimited Stream	Existing Facility	NMI Wetlands	Parcels
Culvert	Alternate Access	Interstate	Railroad	Municipal Boundary
Stormwater Inlet	Potential Access	NHD Flowline	Project Centerline	Floodway
Ditch	Delimited Wetland	State Highway	2-ft Contour	100-year Floodplain

FIGURE 2.03
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

DUKE ENERGY
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REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE: GLENDALE, OHIO, OBTAINED FROM USGS, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSSED 01/2017.

PROJECT LOCATION

DUKE ENERGY
Cardno

FIGURE 2.07
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

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Existing Structure
Proposed Structure
Culvert
Stormwater Inlet
Ditch

Fence Line
Delineated Stream
Alternate Access
Potential Access
Delineated Wetland

Delimited Pond
Existing Facility
Interstate
NHD Flowline
State Highway

US Highway
NWI Wetlands
Railroad
Project Centerline
2-ft Contour

100-ft Corridor
Parcels
Municipal Boundary
Floodway
100-year Floodplain



PROJECT LOCATION

BUTLER COUNTY, OH

REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE: GLENDALE, OHIO, OBTAINED FROM USGS, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSSED 01/2017.

FIGURE 2.08
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

DUKE ENERGY

Cardno

100-ft Corridor

Parcels

Municipal Boundary

Floodway

100-year Floodplain

US Highway

NM Wetlands

Railroad

Project Centerline

2-ft Contour

100-year Floodplain

Existing Structure

Proposed Structure

Culvert

Stormwater Inlet

Ditch

Fence Line

Delineated Stream

Alternate Access

Potential Access

Delineated Wetland

Delineated Pond

Existing Facility

Interstate

NHD Flowline

State Highway

0

50

100

Feet

DATE: 2/18/2020

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REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE: GLENDALE, OHIO, OBTAINED FROM USGS, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSSED 01/2017.

PROJECT LOCATION

FIGURE 2.09
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

DUKE ENERGY
Cardno

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Legend:

- Existing Structure
- Proposed Structure
- Culvert
- Stormwater Inlet
- Ditch
- Fence Line
- Delineated Stream
- Alternate Access
- Potential Access
- Delineated Wetland
- US Highway
- NM Wetlands
- Railroad
- Interstate
- NHD Flowline
- State Highway
- 100-ft Corridor
- Parcels
- Municipal Boundary
- Floodway
- 100-year Floodplain
- 2-ft Contour
- Project Centerline



FIGURE 2.10
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

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0 50 100 Feet

REFERENCE: USGS 7.5 TOPOGRAPHIC
QUADRANGLE GLENDALE, OHIO, OBTAINED
FROM USGS, NATIONAL GEOGRAPHIC
TOPO, AND USGS, ACCESSSED 01/2017.

PROJECT LOCATION

BUTLER COUNTY, OH

Legend:

- Existing Structure
- Proposed Structure
- Culvert
- Stormwater Inlet
- Ditch
- Fence Line
- Delineated Stream
- Alternate Access
- Potential Access
- Delineated Wetland
- Delimited Pond
- Existing Facility
- Interstate
- NHD Flowline
- State Highway
- US Highway
- NM Wetlands
- Railroad
- Project Centerline
- 2-ft Contour
- 100-ft Corridor
- Parcels
- Municipal Boundary
- Floodway
- 100-year Floodplain

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DUKE ENERGY
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FIGURE 2.11
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

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APPROVED: CAJ

0 50 100 Feet

- | | | | | |
|--------------------|-------------------|-------------------|--------------------|---------------------|
| Existing Structure | Fence Line | Delimited Pond | US Highway | 100-ft Corridor |
| Proposed Structure | Delimited Stream | Existing Facility | NM Wetlands | Parcels |
| Culvert | Alternate Access | Interstate | Railroad | Municipal Boundary |
| Stormwater Inlet | Potential Access | NHD Flowline | Project Centerline | Floodway |
| Ditch | Delimited Wetland | State Highway | 2-ft Contour | 100-year Floodplain |

REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE: GLENDALE, OHIO, OBTAINED FROM USGS, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSSED 01/2017.

PROJECT LOCATION

BUTLER COUNTY, OH

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REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE GLENDALE, OHIO, OBTAINED FROM USGS NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSSED 07/2017.

PROJECT LOCATION

24° 2' 30" 24° 2' 30" 24° 2' 30" 24° 2' 30" 24° 2' 30" 24° 2' 30" 24° 2' 30" 24° 2' 30" 24° 2' 30" 24° 2' 30"

BUTLER COUNTY, OH

- Existing Structure
- Proposed Structure
- Culvert
- Stormwater Inlet
- Ditch
- Fence Line
- Delineated Stream
- Alternate Access
- Potential Access
- Delineated Wetland
- Delineated Pond
- Existing Facility
- Interstate
- NHD Flowline
- State Highway
- US Highway
- NW Wetlands
- Railroad
- Project Centerline
- 2-ft Contour
- 100-ft Corridor
- Parcels
- Municipal Boundary
- Floodway
- 100-year Floodplain

DUKE ENERGY

Cardno

0 50 100 Feet

FIGURE 2.12

F3886 PORT UNION TO MULHAUSER

RELOCATION PROJECT

DUKE ENERGY OHIO

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FIGURE 2.13
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

DUKE ENERGY
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PROJECT LOCATION

BUTLER COUNTY, OH

REFERENCE: USGS 7.5 TOPOGRAPHIC
QUADRANGLE: GLENDALE, OHIO, OBTAINED
FROM USGS, NATIONAL GEOGRAPHIC
TOPO, AND USGS, ACCESSSED 01/2017.

100-ft Corridor
Parcels
Municipal Boundary
Floodway
100-year Floodplain

US Highway
NMI Wetlands
Railroad
Project Centerline
2-ft Contour

Delineated Pond
Existing Facility
Interstate
NHD Flowline
State Highway

Fence Line
Delineated Stream
Alternate Access
Potential Access
Delineated Wetland

Existing Structure
Proposed Structure
Culvert
Stormwater Inlet
Ditch

100-ft Corridor
Parcels
Municipal Boundary
Floodway
100-year Floodplain

US Highway
NMI Wetlands
Railroad
Project Centerline
2-ft Contour



PROJECT LOCATION

BUTLER COUNTY, OH

REFERENCE: USGS 7.5 TOPOGRAPHIC QUADRANGLE GLENDALE, OHIO, OBTAINED FROM USGS NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSSED 01/2017.

LEGEND

Existing Structure	Fence Line	Delimited Pond	100-ft Corridor
Proposed Structure	Delimited Stream	Existing Facility	Parcels
Culvert	Alternate Access	Interstate	Municipal Boundary
Stormwater Inlet	Potential Access	NHD Flowline	Floodway
Ditch	Delimited Wetland	State Highway	100-year Floodplain
		US Highway	
		NW Wetlands	
		Railroad	
		Project Centerline	
		2-ft Contour	

FIGURE 2.14
F3886 PORT UNION TO MULHAUSER
RELOCATION PROJECT
DUKE ENERGY OHIO
OPSB BLN FILING

DUKE ENERGY
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Attachment B – Cultural Resources Review

Cultural Resources Literature Review

F3885 and F3886 Port Union to
Mulhauser Rebuild Project

Butler County, Ohio




Document Information

Prepared for Duke Energy Ohio
Project Name Cultural Resources Literature Review F3885 and F3886 Port Union to Mulhauser Rebuild Project, Butler County, Ohio
Project Number J156720M99
Client Contact Kate Keck (Duke Energy Ohio)
Project Manager Cori Jansing (Cardno)
Date September 4, 2019

Prepared and Submitted By Kaye Grob and Veronica Parsell

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Prepared for:



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Executive Summary

Cardno, Inc. (Cardno) conducted a cultural resources literature review for the Duke Energy Ohio F3885 and F3886 Port Union to Mulhauser Rebuild Project Area in Butler County, Ohio. Research focused on documenting known prehistoric and historic resources within a 1.6 kilometer (km) (1 mile [mi]) radius of the Project Area (the Study Area) to ascertain the likelihood for encountering unidentified cultural resources within Project boundaries. The literature review centered on the 1.6 km (1 mi) Study Area, but also examined the region on a larger scale when appropriate.

Current Project plans consist of removing and replacing approximately 4.43 km (02.75 mi) of transmission line and transmission pole structures within an existing 30.48 m (100 ft) wide Duke Energy Ohio transmission line corridor right of way (ROW), encompassing a total Project Area of 13.5 hectares (ha) (33.33 acres [ac]).

The literature review indicates that 39 archaeological sites, 27 historic structures, 1 cemetery, 2 individually listed NRHP resources, and 1 NRHP-listed historic district have been identified within the 1.6 km (1 mi) Study Area. None of these resources are located within the Project Area. Large portions of the Project Area have been disturbed by the installation of adjacent buildings and parking lots. These areas are not conducive for containing intact cultural deposits. A total of 17 transmission pole structures will be replaced in the current location of extant structures; therefore, no additional subsurface disturbance is anticipated as a result of this project.

Due to the presence of graded and disturbed soils, as well as the limited amount of ground disturbance that will occur as a result of the transmission pole structures and line replacement, no archaeological reconnaissance is recommended for the Project to proceed as planned.

1 Introduction

In response to a request from Duke Energy Ohio, Cardno, Inc. (Cardno) conducted a cultural resources records review for the F3885 and F3886 Port Union to Mulhauser Rebuild Project Area in Butler County, Ohio (the Project Area). Based on information provided by Duke Energy Ohio, the Project Area is located in Sections 2, 3, 8 and 14, Township 2 East, Range 2 North, on the Glendale, Ohio 7.5' USGS topographic map (Figure 1). The Project Area consists of 4.43 km (02.75 mi) of a 30.48 m (100 ft) wide transmission line corridor Right-of-Way (ROW). The Duke Energy Ohio F3885 and F3886 Port Union to Mulhauser Rebuild Project initiates at the Port Union Substation, on the north side of Rialto Road (UTM Zone 16 S, 4356164.58 m N, 719823.71 m E [NAD 1983]) and terminates at the Mulhauser Substation (UTM Zone 16 S 4354006.37 m N, 716743.46 m E [NAD 1983]).

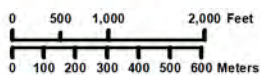
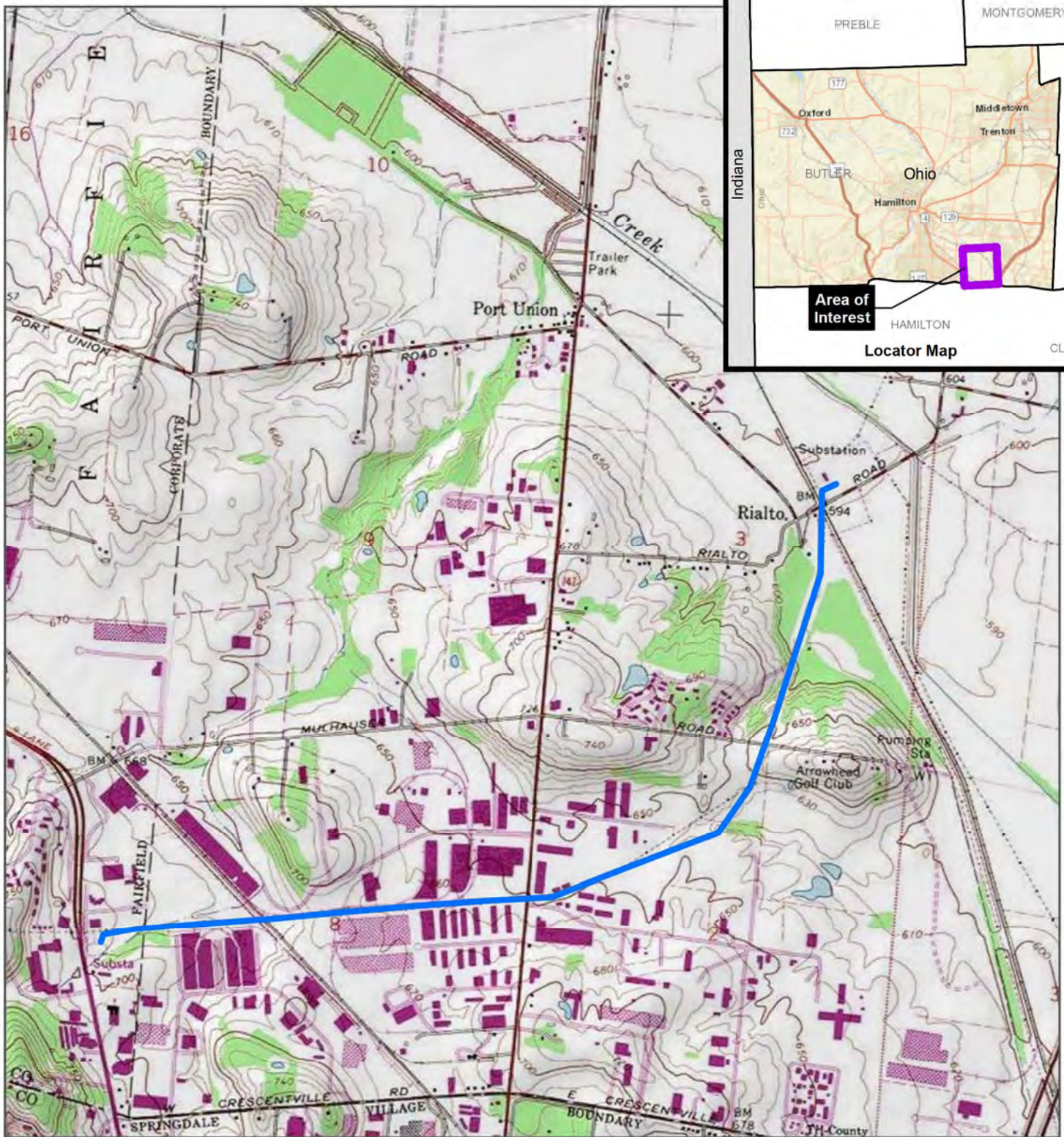
Excavation will be restricted to the replacement of 17 transmission poles. Earth moving activities are anticipated to be minimal. According to Duke Energy Ohio, excavation for transmission poles will be restricted to the approximate locations where the old structures will be removed and new structure installation will occur. New structures will be placed in the same locations as the former structures. The remainder of the Project Area consists of the installation of new overhead line on the transmission poles. No subsurface disturbance will occur in these areas.


The proposed project is necessary in order to maintain the integrity of existing Duke Energy Ohio structures, to ensure adequate power supplies to current and future utility customers in the area. The Project is also needed to ensure safety within the existing easements and to remain in compliance with current transmission line standards. The transmission line route consists of an existing Duke Energy Ohio easement. Construction will be accomplished largely through the use of bucket trucks with truck-mounted augers for structure installation and other construction vehicles transporting cable spools to install the transmission cable along the route.

Background research conducted in August 2019 focused on a 1.6 km (1 mi) Study Area around the proposed project footprint. Cardno gathered information about previously conducted cultural resource investigations and documented cultural resources as well as the environmental and cultural context of the region to assess the potential for additional undocumented cultural resources in and around the Project Area.

Key personnel committed to the project include Ms. Veronica Parsell and Ms. Kaye Grob, who served as report co-authors. Mr. Stephen LaFon created the report graphics.

This report presents the research design and results of the background research in Section 2.0. Section 3.0 discusses the conclusions and recommendations. The references cited in this report appear in Section 4.0. Appendix A includes historic maps and Appendix B includes project overview photos.



 Project Location

N
W E
S

7.5' Quadrangle:
GLENDALE
T2e R2n Sec2,3,8,14
Project No.
J156720m99

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Figure 1: Project Location
Cultural Resources Literature Review
for the F3885 and F3886 Port Union to
Mulhauser Rebuild Project
Duke Energy Ohio
Butler County, Ohio

 **Cardno**

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2 Background Research

The objective of the current study is to identify and evaluate previously documented archaeological resources present within the proposed Project Area, as well as assess the potential for the Project Area to contain additional cultural resources.

This section provides a basic context through which to evaluate the results of our investigation, and will briefly outline the environmental and cultural background of the region in and around Butler County, Ohio.

2.1 Literature Review

Research was conducted using data from online files provided by the Ohio History Connection (OHC) in August 2019 (OHC 2015). Cardno focused on previously recorded resources within 1.6 km (1 mi) of the Project Area, but also examined the larger region where appropriate. For the literature review the following resources were consulted:

- National Historic Landmark list;
- National Register of Historic Places (NRHP) list;
- Ohio Archaeological Inventory Forms (OAI);
- Ohio Historic Inventory Forms (OHI);
- Cultural Resource Management reports;
- Ohio Genealogical Society (OGS) Cemetery Survey files;
- County Histories and Atlas Maps;
- Mills (1914) Archaeological Atlas of Ohio.

Reviewed records indicate that 39 archaeological sites, 27 historic structures, 1 cemetery, 2 individually listed NRHP resources, and 1 NRHP-listed historic district are located within the 1.6 km (1 mi) Study Area (Figure 2).

2.1.1 National Historic Landmarks List

Research indicates no National Historic Landmarks are located in or adjacent to the 1.6 km (1 mi) Study Area.

2.1.2 National Register of Historic Places (NRHP)

One NRHP historic district and two individually listed NRHP resources are located in the 1.6 km (1 mi) Study Area (Figure 2). The Miami-Erie Canal Site Historic District (NPS Reference No. 78002016; BUT0004414) consists of locks that were built in the 1820s as part of the Miami-Erie Canal. The site is located approximately 7 m (23 ft) west of the Project Area but will not be directly affected by activities in the Project Area. Anticipated Project activities include replacing extant transmission lines and 1 transmission pole structure in its current location east of the NRHP district.

The Morgan-Hueston/ Gilbert House (NPS Ref. No. 90001495; OHI BUT0147812) was constructed circa 1820. It is located nearly 1.6 km (1 mi) west of the Project Area and will not be affected by the proposed project.

The Becker House (NPS Ref. No. 74001522) consists of a house constructed circa 1830 and listed in the NRHP in 1974. The house is located approximately 835 m (2,740 ft) south of the Project Area and will not be affected by the proposed project.

2.1.3 Ohio Archaeological Inventory Forms (OAI)

The OAI files indicate 39 archaeological sites within the 1.6 km (1 mi) Study Area, none of which are within or adjacent to the current Project Area.

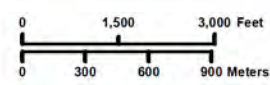
Archaeological sites outside the Project Area are not depicted on Figure 2 due to the sensitive nature of the resources.

Table 1. Previously Recorded Archaeological Sites in the 1.6 km (1 mi) Study Area

Site Number	Site Type	Temporal Affiliation	NRHP Eligibility
33-BU-0206	Prehistoric	Late Archaic, Early Woodland	Potentially Eligible
33-BU-0207	Prehistoric Camp	Unidentified Prehistoric	Not Assessed
33-BU-0512	Prehistoric	Middle and Late Woodland	Ineligible
33-BU-0526	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0527	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0528	Prehistoric	Late Archaic	Potentially Eligible
33-BU-0529	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0530	Prehistoric	Middle Woodland	Ineligible
33-BU-0531	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0532	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0533	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0534	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0535	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0536	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0537	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0538	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0548	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0549	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0550	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0552	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0553	Prehistoric and Historic	Unidentified Prehistoric/ Historic Non Aboriginal	Historic Component Potentially Eligible
33-BU-0554	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0563	Historic	Historic Non Aboriginal	Ineligible
33-BU-0594	Prehistoric and Historic	Unidentified Prehistoric, Historic Non Aboriginal	Ineligible
33-BU-0595	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0596	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0597	Prehistoric	Late Archaic	Ineligible
33-BU-0598	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0599	Prehistoric	Unidentified Prehistoric	Ineligible

Table 1. Previously Recorded Archaeological Sites in the 1.6 km (1 mi) Study Area

Site Number	Site Type	Temporal Affiliation	NRHP Eligibility
33-BU-0620	Prehistoric	Unidentified Prehistoric	Ineligible
33-BU-0621	Historic	Historic Non Aboriginal	Ineligible
33-BU-0623	Prehistoric and Historic	Early Archaic, Middle Archaic, Late Archaic, Early Woodland, Middle Woodland, Historic Non Aboriginal	Potentially Eligible
33-BU-0624	Prehistoric	Early Archaic	Potentially Eligible
33-BU-0625	Prehistoric and Historic	Unidentified Prehistoric, Historic Non Aboriginal	Ineligible
33-BU-0626	Prehistoric and Historic	Unidentified Prehistoric, Historic Non Aboriginal	Ineligible
33-BU-0627	Prehistoric and Historic	Late Archaic, Early Woodland, Historic Non Aboriginal	Undetermined
33-BU-0628	Prehistoric	Early Woodland, Middle Woodland	Potentially Eligible
33-BU-0996	Historic	Historic Non Aboriginal	Ineligible
33-BU-1130	Prehistoric	Unidentified Prehistoric	Unknown



- Historic Structures
- C OGS Cemeteries
- Project Location
- N NR Listings
- NR Boundaries
- 1-Mile Radius

7.5' Quadrangle:
 GLENDALE
 T2e R2n Sec2,3,8,14
 Project No.
 J156720m99

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Figure 2: Previously Identified Cultural Resources
 Cultural Resources Literature Review
 for the F3885 and F3886 Port Union to
 Mulhauser Rebuild Project
 Duke Energy Ohio
 Butler County, Ohio

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2.1.4 Ohio Historic Inventory Forms (OHI)

The OHI files list 27 resources within the 1.6-km (1-mi) Study Area (Figure 2) (Table 2). The structures include dwellings, schools, a church, canal related structures, retail shops, and a windmill. None of the identified OHI resources are located in the Project Area. The Stewart House (OHI BUT0162214) is located approximately 7 m (23 ft) west of the Project Area within the NRHP listed Miami-Erie Canal Site historic district (NPS Ref. No 78002016). The structure consists of a combined 1-story retail shop and 2-story home constructed circa 1910. The structure is a vestige of the small mill community of Rialto and contained a former grocery. No ground disturbing work will be conducted in proximity of this structure. The Project will replace existing transmission lines east of this structure.

Table 2. Previously Recorded OHI Structures in the 1.6 km (1 mi) study area

Structure Number	Historic Use	Address	Approx. Date
BUT0004414	Canal Related	jct Port Union & Rialto Rd	1825
BUT0028914	Single Dwelling/ Barn	5500 Rialto Rd	1869
BUT0029214	Fraternal/Patriotic Org	Port Union near SR 747	1878
BUT0032714	Single Dwelling/ Commercial	8965-8989 SR 747	1850
BUT0032814	Retail Store/Shop	8976 SR 747	1865
BUT0032914		Miami-Erie Canal	
BUT0033014	Church/Religious Structure	4760 Port Union Rd	1857
BUT0033114	Single Dwelling/ Retail Store	8990 Princeton -Glendale Rd	1860
BUT0033214	School	5430 Beckett Rd	1873
BUT0033314	School	SEC Allen Rd & Beckett Rd	1850
BUT0035314	Single Dwelling	Mulhauser Rd	1840
BUT0035414	Single Dwelling/ Barn	4263 Mulhauser Rd	1850
BUT0035514		Mill Creek	ca. 1910
BUT0137712	Single Dwelling	6586 Dixie Hwy	1860
BUT0137812	Food/Procurement/Processing/Agriculture	6851 Dixie Hwy	1870
BUT0137912	Cemetery	Dixie Highway	1850
BUT0139412	Single Dwelling	4119 Glenmary Trail	1915
BUT0145312	Single Dwelling	9491 Seward Rd	1910
BUT0145412	Single Dwelling	9580 Seward Rd	1910
BUT0147812	Single Dwelling	6181 Ross Rd	1820
BUT0156214	Single Dwelling/ Barn	9305 Allen Rd	1870
BUT0156314	Windmill	Allen Rd S of Rialto Rd	1900
BUT0159814	Single Dwelling	4211 Mulhauser Rd	1875
BUT0162214	Retail Store/Shop/ Single Dwelling	5251 Rialto Rd	1910
HAM0496549	Single Dwelling/ Secondary Structure	179 W Crescentville Rd	1860
HAM0496649	Single Dwelling/ Summer Kitchen	jct Crescentville Rd & RT 747	1840
HAM0498349	Single Dwelling/ Carriage House/ Garage	12185 Princeton Pike	1910

2.1.5 Ohio Genealogical Society (OGS) Cemetery Survey files

One cemetery was identified within the 1.6-km (1-mi) Study Area (Figure 2). The Stockton Cemetery/ Reed Family Cemetery (OGS ID 1266; OHI BUT0137912) is located approximately 1.22 km (0.76 mi) northwest of the Project Area. This cemetery will not be impacted by the proposed Project.

2.1.6 Cultural Resource Management (CRM) Reports

Records on file at OHPO indicate that 18 cultural resource investigations have previously been conducted within 1.6 km (1 mi) of the Project Area, two of which are located within small portions of the northern terminus of the current Project Area. These investigations are listed in Table 3 and depicted on Figure 3. Only those surveys within the Project Area are discussed in greater detail below.

In 1998, NES, Inc. conducted a Phase I archaeological reconnaissance for a proposed 5 mi gas pipeline corridor in Butler County, Ohio (Kreinbrink 1998). The majority of the Project Area was found to be disturbed by the adjacent roadway; however, one previously identified archaeological site, 33-Bu-0559, was relocated as a result of the investigation. This site was determined to be ineligible for the NRHP and no further work was recommended (Kreinbrink 1998). This survey intersects a small portion of the northern terminus of the Project Area (Figure 3).

In 2006, EMH&T conducted a Phase I archaeological reconnaissance for a 12.2 mi water main easement (Brown 2006) (Figure 3). The survey identified one archaeological site, 33-Bu-0996, which consisted of a historic scatter determined ineligible for the NRHP (Brown 2006). This investigation intersects a small portion of the Project Area near the northern terminus (Figure 3).

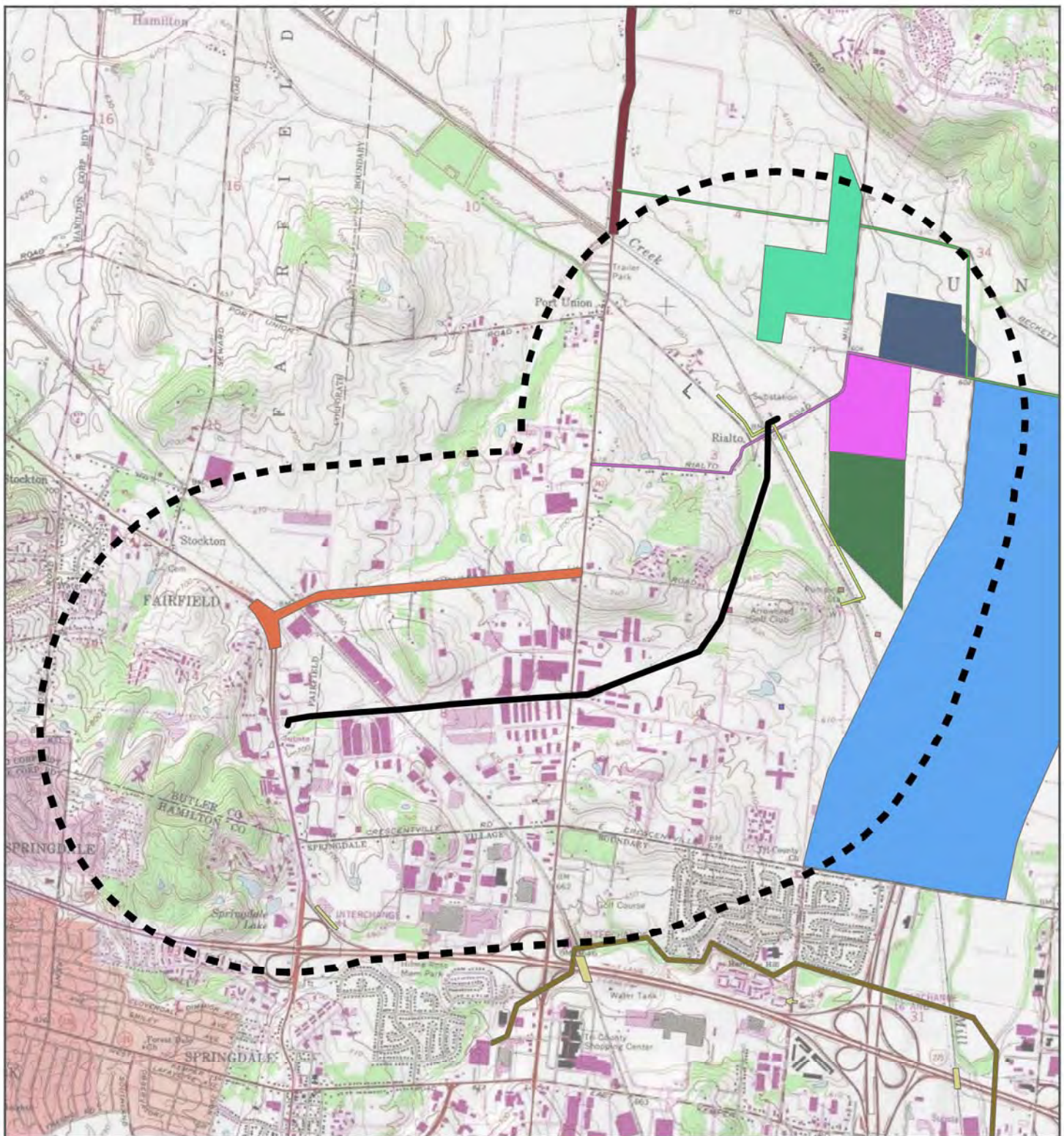
Table 3. Previous Cultural Resource Investigations in the 1.6 km (1 mi) study area

Year	Author(s)	Title	Archaeological Sites Identified
1994	Kreinbrink, Jeannine	Draft Phase I and II Cultural Resources Report from The Springdale-Sharonville Sewer Replacement, Contract II, Hamilton County, Ohio	None
1996	Gray & Pape, Inc.	Report for Letter of Notification Archaeological Survey of Proposed Relocation of Electrical Transmission Towers 5, 168, and 169 for the Mulhauser Road Improvement Project, Butler County, Ohio	None
1996	Jackson, Christopher E. et al.	A Phase I Literature Review and Reconnaissance Survey for the Proposed Allen Road and I-75 Interchange in Union Township, Butler County, Ohio	72 archaeological sites
1996	Jackson, Christopher E.	An Addendum to the Phase I Archaeological Reconnaissance Survey for the Proposed Allen Road and Interstate 75 Interchange in Union Township, Butler County, Ohio	33-Bu-0202 intensive survey
1996	Genheimer, Robert A. and Leah Konicki	A Phase I Archaeological Survey and History/Architecture Survey of the Proposed State Route 747 Improvement Corridor (But-Sr747-2.15) in Liberty and Union Townships, Butler County, Ohio	33-Bu-0564 through 33-Bu-0572
1997	Gibbs, Kevin, Kevin Coleman, and Dawn Herr	Literature Review and Reconnaissance Survey for the Proposed Improvements To S.R. 4 and Mulhauser (C.R. 115) in Fairfield and Union Townships, Butler County, Ohio (But-CR 115-0.00; PID 17381)	None

Table 3. Previous Cultural Resource Investigations in the 1.6 km (1 mi) study area

Year	Author(s)	Title	Archaeological Sites Identified
1997	Hillen, Luella Beth	Phase I Literature Review and Reconnaissance Survey for the Proposed Union Centre Commerce Park in Union Township, Butler County, Ohio	33-Bu-0594 through 33-Bu-0599
**1998	Kreinbrink, Jeannine	Report for Phase I Archaeology Survey of the Rialto Road Proposed Gas Pipeline, Butler County, Ohio	33-Bu-0559
1998	Kreinbrink, Jeannine	Addendum To: Report for Phase I Archaeology Survey of the Rialto Road Proposed Gas Pipeline, Butler County, Ohio	33-Bu-0600 (reidentified 33-Bu-0559 and 0560)
1998	Striker, Michael	Phase I Cultural Resources Survey of Schumacher Dugan Construction, Inc.'s Proposed 56 Acre Development Project in Butler County, Ohio	None
1998	Kreinbrink, Jeannine	Report for Phase I Archaeology Survey of 66 Acres, World Parke at Union Center, Union Township, Butler County, Ohio	33-Bu-0620 and 0621 (Site 33-Bu-0206 reidentified)
1999	Kreinbrink, Jeannine	Report for Phase I Archaeology Survey of 114 Acres, World Parke at Union Center, Union Township, Butler County, Ohio	33-Bu-0623 through 33-Bu-0628
2000	Kreinbrink, Jeannine	Report for Phase I Archaeology Survey of 2.65 miles (4.27 km) along West Chester Road and Union Center Boulevard, Union Township, Butler County, Ohio	None
2003	Picklesimer, John W., II	Phase I Cultural Resources Management Investigations for the I-275 Rehabilitation Project, Springfield Township, Hamilton County, Ohio (HAM-IR 275.21.52; PID #22386)	None
**2006	Brown, Joel	Phase I Cultural Resources Management Investigations for the Approximately 1494 m (4900 ft.) Butler County Dept. of Environmental Services 36 in. Water Main in West Chester Township, Butler County, Ohio.	33-Bu-0996
2012	Keener, Craig S.	Phase I Cultural Resource Management Survey of a Proposed Cell Tower (Windish Rd./ SOH1439) in Union Township (West Chester Township), Butler County, Ohio	None
2014	Gullett, Catherine	Phase I Archaeological Survey for the Moe Wireless Cellular Tower in the (City of Cincinnati), West Chester Township, Butler County, Ohio	None
2016	Konicki, Leah	Phase I Archaeological Reconnaissance (for the) West Chester Cellular Tower Site OH-001, (West Chester Township), Butler County, Ohio	None

**Survey located within the current Project Area



0 1,500 3,000 Feet
0 300 600 900 Meters

Label

Brown, 2006
Genheimer, 1996
Gibbs, 1997

Gray & Pape, Inc. 1996
Gullett, 2014
Hillen, 1997
Jackson, 1996

Keener, 2012
Konicki, 2016
Kreinbrink, 1994
Kreinbrink, 1998

Kreinbrink, 1999
Kreinbrink, 2000
Picklesimer, 2003
Striker, 1998

Project Location
1-Mile Radius

N
W E
S
7.5' Quadrangle:
GLENDALE
T2e R2n Sec2,3,8,14
Project No.
J156720m99

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Figure 3: Previous Cultural Resource Investigations
Cultural Resources Literature Review
for the F3885 and F3886 Port Union to
Mulhauser Rebuild Project
Duke Energy Ohio
Butler County, Ohio

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2.1.7 Historic Maps and Atlases

Three available historic maps were referenced for information pertaining to the historic use of the Project Area between 1875 and 1956 (Everts 1875; USGS 1906, and USGS 1956) (Appendix A).

The 1875 atlas depicts the Project Area on multiple parcels which include landowners R.W. McClelland, William Gares, and James Beatty amongst others. No structures are depicted within or adjacent to the Project Area. The Project Area crosses the Cincinnati, Hamilton and Dayton Railroad on the western end and terminates in the town of Rialto, adjacent to the Miami and Erie Canal (Everts 1875).

The 1906 topographic map, 1948 edition, depicts no structures within or adjacent to the Project Area. The Project Area crosses the Cincinnati, Hamilton, and Dayton Railroad on the western end and terminates in the town of Rialto, slightly east of the Miami and Erie Canal (USGS 1906).

By 1956, the Glendale, Ohio 7.5' topographic quadrangle depicts no structures within the Project Area. The Project Area is entirely within a mapped transmission line corridor, which corresponds to the current transmission Project corridor. The Project Area starts on the west at the Wright Brothers Memorial Highway (RTE 4), travels east, crossing the Baltimore and Ohio Railroad and terminates in the town of Rialto (USGS 1956).

In the *Archaeological Atlas of Ohio*, Mills (1914) lists a total of 251 prehistoric sites in Butler County including 221 mounds, 24 enclosures, 1 village, 1 cemetery, and 4 burials. No mapped archaeological sites appear to be in or adjacent to the current Project Area.

2.2 Brief Environmental Context

The Project Area is located within the Central Lowland Physiographic Region, in the Southern Ohio Loamy Till Plain Region (Brockman 1998). The proposed Project Area is located in the Ohio River Watershed. An unnamed ephemeral tributary of Mill Creek bisects the western portion of the Project Area.

2.2.1 Physiography and Project Area Soils

The Southern Ohio Loamy Till Plain Region is characterized by level to rolling glacial till plain. Butler County was glaciated by both the Illinoian and Wisconsin glaciers during the Pleistocene. The geology of this region is characterized by loamy, high lime, late-Wisconsinan glacial till and outwash, with scattered loess overlaying Paleozoic carbonates and shale. (Brockman 1998).

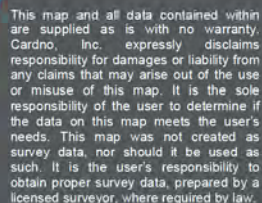
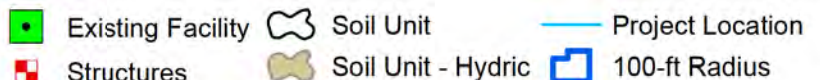
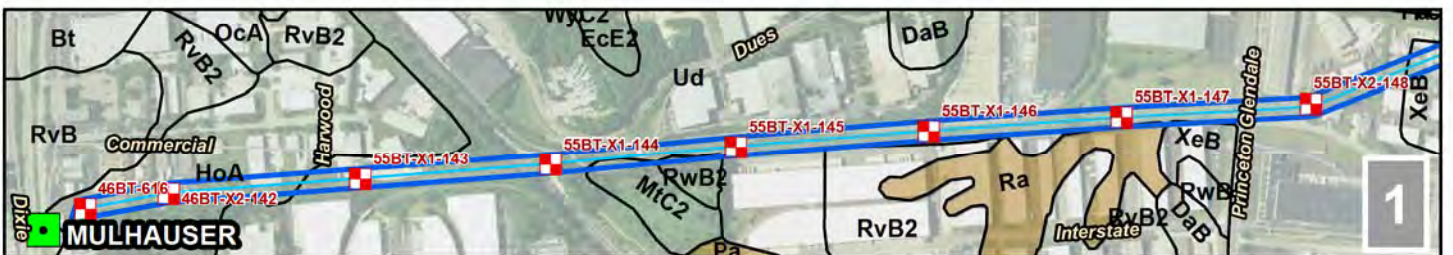
The Project Area is located in the Eastern Cornbelt Plains, Loamy, High Lime, Till Plain ecoregion (USGS n.d.). Originally, beech forests, oak-sugar maple forests, and elm-ash swamp forests were common in the region. Today, the region is dominated by corn and soy agriculture, and livestock outside of the urban-industrial areas (USGS n.d.).

The Project Area is located within the Russell-Miamian-Wynn, Fincastle-Patton-Xenia, and Xenia-Wynn-Russell soil associations. The Russell-Miamian-Wynn soil association is characterized by “deep and moderately deep, gently sloping to moderately steep, moderately well drained and well drained soils that have a moderately fine or fine textured subsoil that formed in loess, glacial till, and residuum from shale and limestone” (USDA/SCS 1980). The Xenia-Wynn-Russell soil association consists of “deep, and moderately deep, nearly level and gently sloping, well-drained and moderately well-drained soils, that have a moderately fine or fine textured subsoil; formed in loess, glacial till, and residuum from shale and limestone”. The Fincastle-Patton-Xenia soil association consists of “deep, nearly level and gently sloping, somewhat poorly, drained, poorly drained, and moderately well drained soils that have moderately fine textured subsoil, formed in loess, glacial till, and lacustrine silts” (USDA/SCS 1980). Soils within the Project Area are depicted in Figure 4 and listed in Table 4 (USDA/SCS 2014).

Table 4. Soil Units within the Project Area

Abbreviation	Soil Unit	Hydric
DaB	Dana silt loam, 2 to 6 percent slopes	No
EdF2	Eden silty clay loam, 25 to 50 percent slopes, moderately eroded	No
FcA	Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	No
HoA	Henshaw silt loam, 0 to 2 percent slopes	No
MsD2	Miamian-Russell silt loams, 12 to 18 percent slopes, moderately eroded	No
MtC2	Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, moderately eroded	Yes
Pa	Patton silty clay loam	Yes
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes	Yes
RvB2	Russell-Miamian silt loams, 0 to 2 percent slopes, moderately eroded	No
RwB2	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded	No
Ud	Udorthents	No
XeB	Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	No

Symbol	Description	Hydric
DaB	Dana silt loam, 2 to 6 percent slopes	No
EdF2	Eden silty clay loam, 25 to 50 percent slopes, moderately eroded	No
FcA	Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	No
HoA	Henshaw silt loam, 0 to 2 percent slopes	No
MsD2	Miamian-Russell silt loams, 12 to 18 percent slopes, moderately eroded	No
MtC2	Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, moderately eroded	No
Pa	Patton silty clay loam	Yes
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes	Yes
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	No
RwB2	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded	No
Ud	Udorthents	No
XeB	Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	No



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2.2.2 Prehistoric Cultural Setting

Archaeological sites are well-documented in Butler County, Ohio. The county is located in a region with a temperate climate, well-drained soils, topography, and riverine corridors, making it an ideal location for settlement and subsistence throughout history. Nearly 1,200 archaeological sites have been documented in Butler County to date, including many with a historic component (OHC 2015). The prehistoric occupation of Ohio is generally divided into three broad periods: Paleoindian, Archaic, and Woodland. Butler County contains sites dating to each of these time periods; however, many of the recorded prehistoric sites in the county do not contain diagnostic artifacts and therefore cannot be attributed to specific cultural occupations (OHC 2015). This section will outline each of these broad time periods, including smaller divisions within each.

2.2.2.1 Paleoindian Period (ca. 13,000 – 10,000 BP)

The Paleoindian period encompasses the cultural remains of the earliest recorded occupants of the region, after about 13,000 years before present day (BP), shortly following the retreat of the last glaciers to cover the land. Paleoindians were nomadic groups comprised of small kin-based bands that primarily practiced a foraging subsistence strategy. Current research suggests that these Paleoindian bands moved within a circumscribed geographic range to intercept large herd animals during their migratory cycles (Gramly 1988; Stothers 1996). Over time, the focus likely shifted from large-scale hunting expeditions to a more regular procurement of game, accompanied by a decrease in the overall size of territory exploited by these groups.

Paleoindian sites are most easily recognized in the archaeological record by the presence of lanceolate spear points. These points may be fluted (a large flake removed from each side of the base) or unfluted. Early Paleoindian projectile points are often made of high quality materials, usually from a widely dispersed area, which suggest a high level of mobility. Later Paleoindian points are more often made from local chert types, which may reflect a reduction in this mobility.

Documented archaeological sites dating to this time period are relatively rare in this part of state. The Ohio Archaeological Inventory lists approximately 5 sites dating to this period in Butler County (OHC 2015).

2.2.2.2 The Archaic Period (10,000 – 2,500 BP)

The Archaic period is identified by archaeologists as the period when settlements organized around local environmental resources replaced the broad seasonal migration patterns of the Paleoindian period. Approximately 8 sites in Butler County can be broadly attributed to the Archaic Period, often through the presence of characteristic projectile points (OHC 2015).

2.2.2.2.1 Early Archaic (10,000 – 8,000 BP)

The Early Archaic time period is often identified in the archaeological record by the transition from large, lanceolate bifaces of Paleoindian assemblages to smaller, notched and bifurcated bifaces. Groundstone tools and other lithic tools such as graters, scrapers, and notched knives are also observed in the Early Archaic. Local cherts continue to appear in the archaeological record as a common resource. Early Archaic subsistence strategies continued the focus on large migrating Pleistocene herd animals, but Early Archaic groups also began to exploit more local environmental resources including smaller game animals. Early Archaic artifacts tend to display more diversity in style and function, which also may reflect diversity in resource exploitation. Currently, nearly 50 documented sites in Butler County have an Early Archaic component (OHC 2015).

2.2.2.2.2 Middle Archaic Period (8,000 – 5,000 BP)

Archaeologists observe little change between the Early and Middle Archaic periods. The Middle Archaic period is reflected by changes in projectile point and blade types, but these variations are more prominent in southern portions of the U.S., and are not evident in southern Ohio (Vickery and Litfin 1992). The Middle

Archaic may be described simply as a transitional period between the Early and Late Archaic periods. Only 14 sites in Butler County have a documented Middle Archaic component (OHC 2015).

2.2.2.2.3 Late Archaic Period (5,000 – 2,500 BP)

The Late Archaic Period sees an increased focus on regional mobility patterns as well as an increase in resource diversity. Late Archaic groups incorporated plants into a larger part of their subsistence strategy. Late Archaic sites often represent repeated occupation over a long period of time, which suggests a regular, more localized pattern of movement across the landscape. Projectile points and other lithic tools also show an increase in variation. Small side-notched and corner-notched points and side and end scrapers appear frequently in Late Archaic assemblages. Groundstone tools are also increasingly evident. Pottery begins to appear in the transition between the Late Archaic and Early Woodland periods. There are nearly 75 documented sites with a Late Archaic component in Butler County (OHC 2015).

2.2.2.3 The Woodland Period (2,500 – 500 BP)

Wide exchange of materials, the innovation of ceramic technology, the emergence of domesticated crops and animals, and an increasing shift toward permanent settlements generally identify the transition to the Woodland time period. Populations in the Woodland period tended to be broad spectrum hunter-gatherers, living in semi-sedentary occupations made up of small groups, likely based on kinship. These occupations were typically located around riverine environments and organized around communal burials. Innovations such as a more intensive reliance on pottery, horticulture, as well as the bow and arrow also occur during the Woodland time period. Butler County contains approximately 172 sites with artifacts dating to the Woodland period (OHC 2015).

2.2.2.3.1 Early Woodland Period (2,500 – 1,900 BP)

The Early Woodland period marks the transition from the more nomadic Archaic subsistence strategy to a more localized, semi-sedentary subsistence strategy. The Adena culture is representative of the Early Woodland period in southern Ohio. Cultural material associated with the Adena are stemmed projectile points with weak shoulders, ceramic vessels with flat bottoms and lug handles, drills, scrapers, and a variety of ornamental and ceremonial materials (Tuck 1978). The earliest earthworks and burial mounds in southern Ohio are attributed to the Adena. These earthworks were often constructed over another structure, indicated by the presence of post-hole features. Burials are often associated with a variety of exotic materials, such as cut mica, copper, beads, gorgets, and shell. It is important to note, however, that “Adena”, like “Hopewell” in the Middle Woodland, refers more to a pattern of mortuary practices and exchange of goods, rather than to a discrete group of peoples. Currently, approximately 42 sites in Butler County date to the Early Woodland Period (OHC 2015).

2.2.2.3.2 The Middle Woodland Period (1,900 – 1,400 BP)

Archaeologists generally describe the Middle Woodland period in Ohio as the period associated with the development of the Hopewell culture. The subsistence strategy was organized around a seasonal pattern of resource procurement and an increasing reliance on horticulture. The Middle Woodland period saw a continued increase in population and social organization, reflected in the numerous earthworks constructed in this period. These earthworks, often constructed in geometric figures, may have represented ceremonial centers suggesting that populations may have been organized at some larger scale. The prehistoric trade of exotic materials also reached a high during the Middle Woodland as populations within the “Hopewell Interaction Sphere” traded materials from as far away as the Upper Peninsula of Michigan (copper), the Gulf Coast (shell and shark teeth), and the Carolinas (mica). It is likely that the Hopewell Interaction Sphere represents a broad but loosely organized pattern of exchange rather than a well-defined system of trade (Pacheco 1996). While pottery tends to be more utilitarian in nature, vessels with an engraved duck motif appear in funerary contexts. In general, Middle Woodland vessels have thinner walls than earlier ceramics. There are approximately 40 sites in Butler County with a Middle Woodland component (OHC 2015).

2.2.2.3.3 The Late Woodland/Late Prehistoric Period (1,400 – 1,000 BP)

A significant reduction in the extensive, extra-regional trade of exotic goods and materials marks the Late Woodland period. The construction of large ceremonial earthworks also ends in the Late Woodland, as there is a shift in mortuary practices to interring burials into existing, older mounds or small stone mounds. Isolated, individual burials are also observed. This period is also characterized by an increasingly sedentary residential pattern of large nucleated villages supported by a growing reliance on maize and other cultigens as a substantial part of the Late Woodland diet. Palisades or ditches were sometimes constructed around these villages. This need for defensive structures suggests an increasing instability at times. Resource diversity also continued to increase, although reliance on aquatic resources was less pronounced in southern Ohio than in other areas of the Midwest. The deeply dissected drainages of southern Ohio do not produce the oxbow pond or lake features as seen in the Mississippi, Missouri or Illinois River valleys (Seeman and Dancey 2000). Late Woodland artifacts include small triangular points, scrapers, mortars and pestles, celts, and hoes. A distinct technological innovation of the period was the use of earthen ovens for steaming or baking food (Seeman and Dancey 2000). Pottery in the early portion of the Late Woodland exhibits thick angular shoulders (Newtown shoulder) and contrasts with Middle Woodland containers (Seeman and Dancey 2000). The bow and arrow became prevalent, though likely in the later portion of the Late Woodland. Butler County contains approximately 33 documented sites with artifacts dating to the Late Woodland Period (OHC 2015).

2.2.2.4 Fort Ancient (1,000 BP – contact)

In southwest Ohio, archaeologists have described a settlement system marked by sedentary villages located along floodplains, with smaller resource-specific occupations in the uplands and lowlands (Pollack and Henderson 2000). The Fort Ancient period has been described as an in situ development from Late Woodland groups in the Ohio valley, extending into southeastern Indiana, northern Kentucky, southern Ohio, and eastern West Virginia (Drooker 1997). The Mississippian influence is evident in designs and forms, but made from locally available materials such as spatula shaped celts, triangular projectile points, and the falcon motif. Fort Ancient villages are typically located along the Ohio River and its major tributaries. In the late pre-contact period, the majority of settlements were located within 12.4 mi (20 km) of the Ohio River (Drooker 1997). Many of these villages are organized around a central plaza and some were surrounded by palisades. Structures varied in size from as small as 107 square feet (10 square meters) to as large as 1930 square feet (180 square meters) (Drooker 1997). Semi-subterranean pit houses provided cooler temperatures in the summer and warmer temperatures in the winter. Storage pits also became more extensive, with some measuring 3.4 ft (1 m) in diameter and 6.5 ft (2 m) in depth, capable of storing over 45 bushels of shelled corn (Cowan 1987).

Use of burial mounds declined after approximately 700 BP, as people began interring their deceased in the villages around plazas as well as in and around houses. Funerary items include pots and pipes, but more exotic materials such as marine shell also are seen. The presence of marine shell and other engraved Mississippian goods along with the location of Fort Ancient groups along the Ohio River suggest some level of regional interaction. The late pre-contact period, however, is characterized by more concentrated settlement locations and more intraregional similarities in goods such as ceramics.

By the later part of the Fort Ancient period (post 1400 A.D.), most settlements were located within 20 km of the Ohio River and appear to represent a collection of formerly dispersed groups (Drooker and Cowan 2001). This period also includes increased intra and extra-regional interaction among eastern and western populations (Drooker and Cowan 2001). The mid-sixteenth century marks the beginning of the Protohistoric period, when European goods begin to arrive in the region, but prior to substantial European establishment.

Despite sharing the name “Fort Ancient”, the large earthworks at the hilltop enclosure located approximately 32 km (20 mi) east northeast of the Project Area, were built during the Middle Woodland period. The Fort Ancient enclosure includes over 18,000 feet of linear earthworks on a terrace overlooking the Little Miami River.

One of the most prominent sites in the area dating to the Fort Ancient period is the Madisonville site located near Cincinnati. Currently, there are approximately 40 sites that date to this time period in Butler County (OHC 2015).

2.2.3 Historic Cultural Setting

The establishment of Detroit (1701) as a major center for fur trade and as the seat of European political and military power in the region led to an increase of non-Native people and a resurgence of Native Americans in the Ohio area throughout the eighteenth century (Nester 2000). By the mid-eighteenth century, British and French traders began to rival each other in the Ohio region. Following the French and Indian War (1756-1763), the French relinquished control of all Ohio lands to the British (Nester 2000). In the years following the treaty that ended the war, British colonists were often engaged in skirmishes and battles with the Native Americans, who were disgruntled with the postwar policies of the British. In an attempt to maintain peaceful relations with the tribes that participated as allies to the French during the war, Great Britain passed the Royal Proclamation of 1763, which restricted settlement west of the Appalachian Mountains (Ohio History Central 2015a). The proclamation only served to anger the colonists, who continued to move west and settle. The British victory in the French and Indian War and the events that followed shortly thereafter sparked the upheaval that would lead to the American Revolution against Great Britain (Ohio History Central 2015a). After the Revolutionary War (1775–1783), most of the Native American territory was ceded to the United States through a series of treaties, including the Treaty of Fort McIntosh (Pennsylvania) in 1785 and the Treaty of Greenville (Ohio) in 1795 (Ohio History Central 2015b).

The 1795 Treaty of Greenville, which was signed at Fort Greenville (now the city of Greenville located northwest of Montgomery County in Darke County), effectively ended war with the Native Americans and meant that southwest Ohio could develop along the Great and Little Miami Rivers. The stage had been set for this development by John Cleves Symmes, an investor who purchased the entire area between the Great and Little Miami Rivers, from the Ohio River north to the Mad River (in present-day Montgomery County) (Honious 2003). Symmes had purchased the land in 1787, for 66 cents an acre; however, it was not until the Treaty of Greenville, which created a boundary line between land owned by Native American tribes and the area open to European settlement that Symmes could profit from his purchase (Honious 2003). Two weeks after the treaty was signed, Symmes sold a portion of his property to a group of developers that included Arthur St. Clair (the Governor of the Northwest Territory), Israel Ludlow, James Wilkinson, and Congressman Jonathan Dayton (Honious 2003). Known as the “Dayton Purchase,” this tract included land in present-day eastern Montgomery County and western Greene County, and included the land that would become the city of Dayton. The investors chose “Dayton” for the name as the most pleasant of their four surnames (Honious 2003). Ohio officially became a state in February 1803, when President Jefferson endorsed the United States Congress's decision to grant Ohio statehood; however, Ohio celebrates statehood in March 1, when the Ohio General Assembly met for the first time (Ohio History Central 2015c).

2.2.3.1 *Butler County, West Chester Township, and Port Union, Ohio*

Butler County, located west of Symmes' Miami Purchase, was founded in 1803 when Hamilton County was divided. The new county was named after revolutionary war hero Richard Butler, who died during St. Clair's defeat in 1791 (Western Biographical Publishing Company 1882). It was one of the first twelve counties formed in the new State of Ohio. Settlement in Butler County began in the 1790s, with the construction of Fort Hamilton on the Miami River (Bauer and McNutt 2006). Hamilton, on the site of Fort Hamilton, is the county seat, and is also the largest city in the county (Ohio History Central 2015d).

West Chester Township, originally Union Township, was created in 1823, the last township to be created in the Butler County. It was known as Union Township until 2000, when the name was changed by township voters to distinguish it from other “Union Townships” within the state of Ohio. Today Butler County holds approximately 333,000 residents, and of those, 57,000 live in West Chester Township. Butler County has

recently seen a population increase, and many residents commute to Cincinnati, though the county is also home to multiple industries (Ohio History Central 2015d).

Port Union is an unincorporated community at State Route 747 and Port Union Rialto Road, which developed next to a turning basin for the Miami and Erie Canal (Western Biographical Publishing Company 1882). In the mid-nineteenth century, the Cincinnati, Hamilton, and Dayton Railroad laid tracks through Port Union.

Many archaeological sites in Butler County date to the historic period. These sites represent the introduction and perpetuation of European and early American settlement in the region. The majority of these sites consist of domestic, industrial or commercial development associated with the historic growth of Butler County. Some common site types include elements of farmsteads or other residential sites, municipal buildings such as schools or churches, commercial structures such as mills, or historic dump and debris discard areas.

2.2.3.2 *Miami and Erie Canal*

In the 1810s, two influential men, Thomas Worthington and Ethan Allen Brown, both governors, supported the creation of a canal that would provide easy access to both Lake Erie in the north and the Ohio River in the south (Ohio History Central 2015e). Both men believed that this access would allow Ohio to profit, as farmers and merchants would be able to transport their products more easily and cheaply, while at the same time opening up new markets (Ohio History Central 2015e). The Ohio legislature created the Ohio Canal Commission in 1822; the purpose of the commission was to hire an engineer responsible for surveying a route for a canal connecting Lake Erie to the Ohio River. The state legislature originally funded the westernmost route, which came to be known as the Miami and Erie Canal, between Cincinnati to just north of Dayton (Ohio History Central 2015e). This was extended to Lake Erie in 1830, and when completed, the canal measured 249 miles. It was built between 1825 and 1845, and included a series of 105 canal locks, each of which measured 90 feet by 15 feet (Hiking 2016).

The canals provided many advantages to Ohio and its residents. For example, the cost to ship goods from the East Coast to Ohio declined from \$125 per ton of goods to \$25 per ton of goods, and passengers could travel from Cleveland to Portsmouth for \$1.70. Shortly after the canal was completed, however, railroads started to transplant the canals as a quick and inexpensive form of transportation (Hiking 2016). By the late 1870s, the canals fell into disuse (Hiking 2016).

2.3 Summary and Discussion

This section presented the results of the cultural resources records review. The records check indicates that 39 archaeological sites, 27 historic structures, 1 cemetery, 2 individually listed NRHP resources, and 1 NRHP-listed historic district have been recorded within 1.6 km (1 mi) of the Project Area. In addition, the records check determined that the majority of the Project Area has not been previously surveyed for cultural resources. The records review suggests that it is unlikely that intact cultural resources would be extant within the Project Area. The majority of the Project Area is located in disturbed and graded soils related to the installation of adjacent buildings, construction of the existing substation, parking areas and access roads, old rail lines, and existing transmission pole structures. Photographs of the Project Area, including these disturbances, are located in Appendix B.

3 Summary and Recommendations

3.1 Project Overview

In response to a request from Duke Energy Ohio, Cardno conducted a cultural resources records review for the F3885 and F3886 Port Union to Mulhauser Rebuild Project in Butler County, Ohio. Based on information provided by Duke Energy Ohio, the Project Area is located in Sections 2, 3, 8 and 14, Township 2 East, Range 2 North, on the Glendale, Ohio 7.5' USGS topographic map in Butler County, Ohio. The current Project plans consist of removing and replacing approximately 4.43 km (02.75 mi) of transmission line and transmission pole structures within an existing 100-foot wide Duke Energy Ohio transmission line corridor ROW, encompassing a total Project Area of 13.5 ha (33.33 ac).

Background research conducted in August 2019 focused on a 1.6 km (1 mi) Study Area around the proposed Project footprint. Cardno gathered information about previously conducted cultural resource investigations and documented cultural resources as well as the environmental and cultural context of the region to assess the potential for additional undocumented cultural resources in and around the Project Area.

3.2 Applicable Regulations and Guidelines

The Ohio Administrative Code (OAC) 4906-06. OAC 4906-06 outlines the requirements regarding filing an accelerated certificate application with the Ohio Power Siting Board. This regulation requires the applicant "provide a description of the applicant's investigation concerning the presence or absence of significant archeological or cultural resources that may be located within the potential disturbance area of the Project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation".

Section 106 of the National Historic Preservation Act (NHPA) requires that federal agencies assess the effect(s) of their projects on cultural resources eligible for listing in the NRHP. Section 106 of the NHPA applies to any federal agency undertaking that has the potential to affect cultural resources eligible for listing in the NRHP, should they be present. This federal agency action may include permitting, funding, or other approval of project activities.

Section 106 of the NHPA requires that the federal agency assess effects of their undertakings in areas where the effects are likely to occur, known as the Area of Potential Effects (APE). The APE takes into account both direct and indirect effects. Direct effects are limited to the areas of likely ground disturbance in the planned area of improvements and in associated easements. Direct effects in these areas may affect archaeological or architectural resources if present. Indirect effects includes areas where visual, noise, or other effects caused by the project occur outside the footprint of the project area. Indirect effects may affect architectural resources, certain types of archaeological resources, or other cultural resources if present. Ohio Administrative Code 4906-06 outlines the requirements regarding filing an accelerated certificate application with the Ohio Power Siting Board. This regulation requires the applicant "provide a description of the applicant's investigation concerning the presence or absence of significant archeological or cultural resources that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation".

Pursuant to Ohio Revised Code §149.53, if archaeological artifacts or human remains are identified during Project activities in any location, work within the area must stop and the OHPO must be notified within two (2) business days.

3.3 Summary of Results and Recommendations

The records check indicates that 39 archaeological sites, 27 historic structures, 1 cemetery, 2 individually listed NRHP resources, and 1 NRHP-listed historic district have been recorded within 1.6 km (1 mi) of the Project Area. None of the resources are located within the Project Area; however, 2 resources are located approximately 7 m (23 ft) west of the Project Area, the Stewart House (OHI BUT0162214) and NRHP listed Miami-Erie Canal Site historic district (NPS Ref. No 78002016). Both of these resources are located outside of the area where subsurface disturbance associated with the Project will occur; therefore, they will not be directly impacted by Project activities. In addition, the Project plans indicate that the transmission tower being replaced adjacent to the Miami-Erie Canal Site will be removed and replaced in its current location and new transmission line will be installed in the extant transmission corridor, resulting in no new indirect impacts. The Stewart House has been previously determined not significant. The majority of the Project Area has not been previously investigated for cultural resources.

The majority of the Project Area is within disturbed and graded locations, including gravel and concrete lots and substation facilities. The 17 replacement transmission pole structures are anticipated to be replaced in approximately the same location as the extant structures, resulting in no new subsurface disturbance. Due to the previously disturbed soils and limited amount of ground disturbance related to the removal of existing transmission structures and installation of new transmission pole structures and overhead transmission lines, no archaeological reconnaissance is recommended for the Project to proceed as planned.

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Cultural Resources Literature
Review F3885 and F3886 Port Union
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Butler County, Ohio

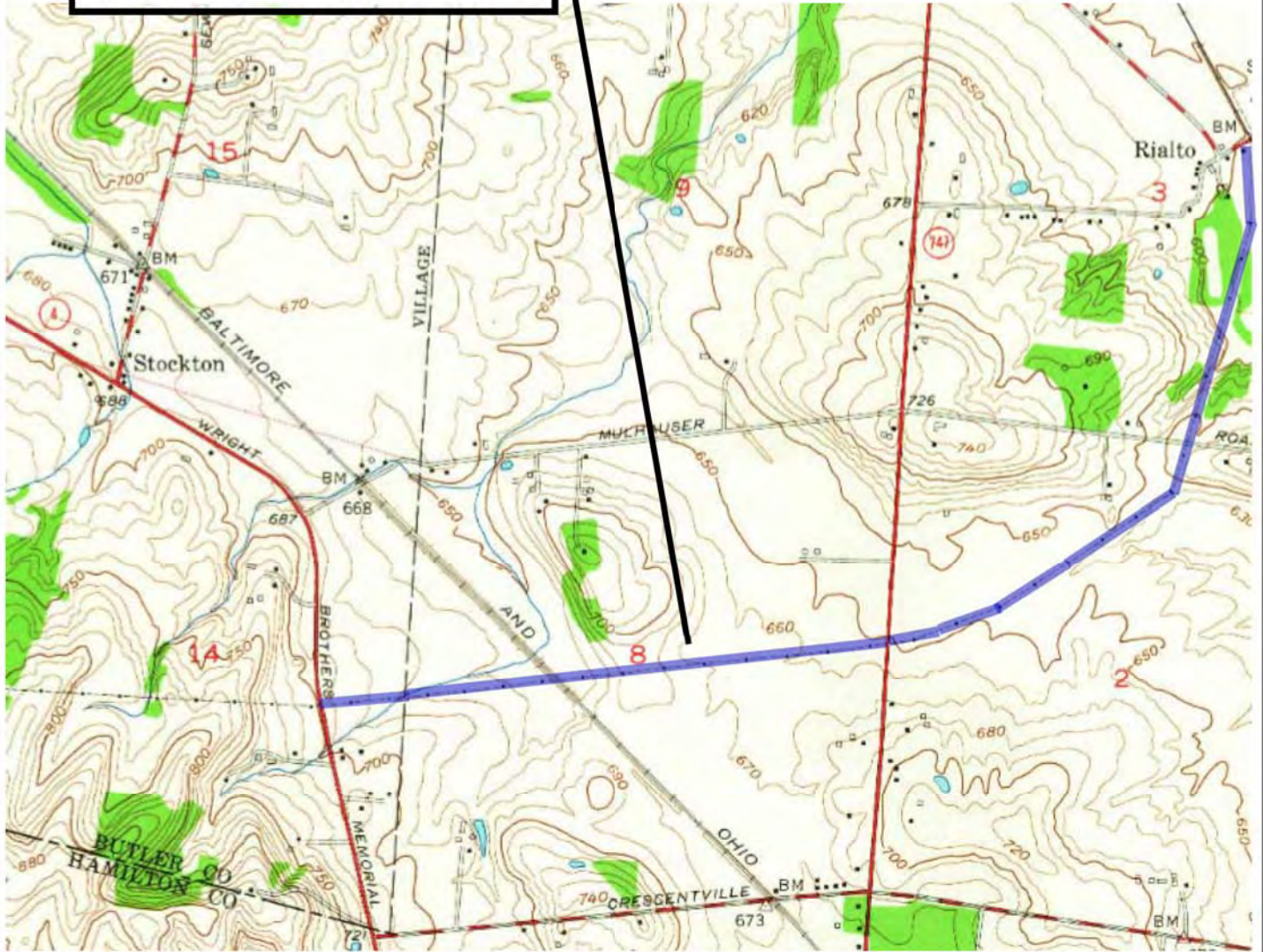
APPENDIX

A

HISTORIC MAPS



Approximate Project Location



Project Number: 150720M10

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Appendix A: 1956 Topographic Map
Cultural Resources Literature Review
for the F3885 and F3886 Port Union to Mulhauser Rebuild Project
Duke Energy Ohio
Butler County, Ohio



Cultural Resources Literature
Review F3885 and F3886 Port Union
to Mulhauser Rebuild Project
Butler County, Ohio

APPENDIX

B

PHOTOPAGES



Photo 1: Project area overview.



Photo 2: Project area overview.



Photo 3: Project area overview.



Photo 4: Project area overview.

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Project Number:
156720M99

Project Area Photographs

Cultural Resources Literature Review for the F3885 and
F3886 Port Union to Mulhauser Rebuild Project
Duke Energy, Ohio
Butler County, Ohio



Attachment C – Agency Coordination

Cori Jansing

From: Teresa Barnes <BarnesT@bceo.org>
Sent: Tuesday, September 10, 2019 11:56 AM
To: Cori Jansing
Cc: Robert Lentz
Subject: RE: Duke Energy_Port Union to Muhlhauser Rebuild Project ESC Permit

Cori

Given the minor amount of earth disturbance at each site – it is unlikely that either an earth moving permit nor an erosion and sediment control lot permit would be required. However, please note that dependent on the location of each and utility permit and/or a right-of-way permit might be required.
If you would like to send over the site plans, we can verify for you.
THANKS

Teresa



Teresa K. Barnes, P.E., CPESC

DESIGN ENGINEER

1921 Fairgrove Avenue
Hamilton, OH 45011

513-785-4142
Fax 513-867-8549

barnest@bceo.org

From: Robert Lentz
Sent: Monday, September 09, 2019 2:54 PM
To: Teresa Barnes
Subject: FW: Duke Energy_Port Union to Muhlhauser Rebuild Project ESC Permit

Teresa,

Can you reply to this person?

Thanks,
Bob

From: Cori Jansing [<mailto:cori.jansing@cardno.com>]
Sent: Monday, September 09, 2019 2:50 PM
To: Robert Lentz
Subject: Duke Energy_Port Union to Muhlhauser Rebuild Project ESC Permit

Good Afternoon,

I am currently working on behalf of Duke Energy whom intend to remove seventeen (17) lattice overhead structures and replace them with updated steel monopole structures associated with the Port Union to Muhlhauser Rebuild Project. Fifteen (15) of the proposed structures associated with the with the Project that are located within the West Chester Township, Butler County, Ohio. No net fill is anticipated by the proposed Project however some earth disturbance is anticipate in order to remove and replace each structure. Based on these parameters can you please let me know if this project will require an Earth Moving Erosion and Sediment Control (ESC) permit? If you have any questions please feel free to contact me at 513-833-6392 or via email.

Thank you for your help,

Cori

Cori Jansing

REGULATORY SPECIALIST, BOTANIST
CARDNO



Office +1 513 489 2402 Direct +1 513 233 7034 Mobile +1 513 833 6392

Address 11121 Canal Rd., Cincinnati (Sharonville), Ohio 45241

Email cori.jansing@cardno.com Web www.cardno.com

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From: [Harold Baxter](#)
To: [Cori Jansing](#)
Subject: Re: Duke Energy_Port Union to Muhlhauser_Agricultural District
Date: Thursday, January 23, 2020 12:56:33 PM
Attachments: [IMAGE.png](#)
[IMAGE.png](#)
[IMAGE.png](#)
[IMAGE.png](#)

Cori,

As we discussed earlier the parcel M5610-001-000-003 is enrolled in the Current Agricultural Use Value program but is not within an Agricultural District.

Harold Baxter
CAUV Administrator
Butler County Auditor's Office

From: Cori Jansing <cori.jansing@cardno.com>
To: "baxterh@butlercountyohio.org" <baxterh@butlercountyohio.org>
Date: 1/23/2020 12:41 PM
Subject: Duke Energy_Port Union to Muhlhauser_Agricultural District

Harold,

It was nice talking with you earlier today. When you get a chance can you please confirm whether or not parcel M5610001000003 is located within a. Agricultural District. Thank you for your help.

Best,

Cori
Corrine Jansing
PROJECT CONSULTANT
CARDNO



Office +1 513 489 2402 Direct +1 513 233 7034 Mobile +1 513 833 6392
Address 11121 Canal Rd. Suite 200, Sharonville, Ohio 45241
Email cori.jansing@cardno.com Web www.cardno.com

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Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate

John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

January 21, 2020

Cori Jansing
Cardno
11121 Canal Road
Cincinnati, Ohio 45241

Re: 19-741; F3886 Port Union to Muhlhauser Rebuild

Project: The proposed project involves the removal and replacement of 17 existing structures with updated engineered steel monopoles.

Location: The proposed project is located in the City of Fairfield and West Chester Township, Butler County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, and the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet fields and meadows. Due to the location and the type of habitat present at the project site, and within the vicinity of the project area, this project is not likely to impact this species.

The project is within the range of the cave salamander (*Eurycea lucifuga*), a state endangered species. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). Due to the location and the type of habitat present at the project site, and within the vicinity of the project area, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or Sarah.Tebbe@dnr.state.oh.us if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator (Acting)

From: susan_zimmermann@fws.gov on behalf of [Ohio, FW3](#)
To: [Cori Jansing](#)
Subject: Duke Energy OH F3886 Port Union to Muhlhauser Rebuild, Fairfield, Butler Co.
Date: Wednesday, September 11, 2019 9:35:31 AM



UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994



TAILS# 03E15000-2019-TA-1890

Dear Ms. Jansing,

We have received your recent correspondence regarding potential impacts to federally listed species in the vicinity of the above referenced project. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. We recommend that proposed activities minimize water quality impacts, including fill in streams and wetlands. Best management practices should be utilized to minimize erosion and sedimentation.

FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES COMMENTS: Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees =3 inches diameter at breast height between October 1 and March 31) to avoid impacts to the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*), we do not anticipate adverse effects to any federally endangered, threatened, proposed or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the U.S. Fish and Wildlife Service (Service) should be initiated to assess any potential impacts.

If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the Endangered Species Act (ESA), between the Service and the federal action agency, is completed. We recommend that the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice M. Ashfield". The signature is stylized with a large, looping initial "P" and a cursive "Ashfield".

Patrice M. Ashfield
Field Office Supervisor

Attachment D – Regulated Waters Delineation Report

Regulated Waters Delineation Report

F3886 Port Union to Muhlhauser Rebuild Project

Butler County, Ohio

October 31, 2019



Document Information

Prepared for Duke Energy Ohio
Client Contact Dane Vandewater (Duke Energy Ohio)
Project Name F3886 Port Union to Muhlhauser Rebuild Project
Project Number Cardno #J156720M99
Project Manager Cori Jansing (Cardno)
Date October 31, 2019

Prepared for:



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Acronyms

APA	Administrative Procedure Act
BF	Bank Full
CFR	Code of Federal Regulations
CWA	Clean Water Act
DBH	Diameter at Breast Height
DP	Data Point
EPA	U.S. Environmental Protection Agency
ETR	Endangered, Threatened, and Rare
FAC	Facultative Plant
FACU	Facultative Upland Plant
FACW	Facultative Wetland Plant
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GIS	Geographical Information System
Acronyms, continued	

MS4	Municipal Separate Storm Water Sewer Systems
NHD	National Hydrography Dataset
NPDES	National Pollutant Discharge Elimination System
NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
NWP	Nationwide Permit
NWPL	National Wetland Plant List
OBL	Obligate Wetland Plant
OEPA	Ohio Environmental Protection Agency
ODNR	Ohio Department of Natural Resources
OHWM	Ordinary High Water Mark
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
PLSS	Public Land Survey Section
PSS	Palustrine Shrub Scrub Wetland
RGP	Regional General Permit
SNE	Significant Nexus
SWANCC	Solid Waste Agency of Northern Cook County
TNW	Traditional Navigable Water
TOB	Top of Bank
UPL	Upland Plant
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WOTUS	Waters of the United States
WQC	Water Quality Certification

1 Introduction

Cardno was contracted to perform a water resource inventory, including wetlands and streams, which are located at the Duke Energy Ohio F3886 Port Union to Muhlhauser Rebuild Project Study Area and potential access points in the City of Fairfield and West Chester Township, Butler County, Ohio. The fieldwork for this task was performed on August 13-14, 2019. Table 1-1 summarizes the location of the Study Area based on the Public Land Survey Section (PLSS) data.

Table 1-1 PLSS within F3886 Port Union to Muhlhauser Rebuild Project Area

Township	Range	Section
2E	2N	2
2E	2N	3
2E	2N	8
2E	2N	14

The total size of the Study Area was approximately 33.4 acres. The Study Area consisted of five habitat types: maintained ROW/oldfield, urban turf/impervious surfaces, agricultural land, emergent wetland, and emergent/scrub-shrub wetland complex.

This report identifies the jurisdictional status of aquatic features identified within the Study Area based on Cardno's best professional understanding and interpretation of the *Corps of Engineers' Wetland Delineation Manual* (Environmental Laboratory, 1987) and U.S. Army Corps of Engineers' (USACE) guidance documents and regulations. Jurisdictional determinations for other "waters of the U.S." were made based on definitions and guidance found in 33 CFR 328.3, USACE Regulatory Guidance Letters, and the wetland delineation manual. The USACE administers Section 404 of the Clean Water Act (CWA), which regulates the discharge of fill or dredged material into all "waters of the U.S.," and is the regulatory authority that must make the final determination as to the jurisdictional status of the Study Area.

2 Regulatory Definitions

2.1 Waters of the United States

"Waters of the U.S." are within the jurisdiction of the USACE under the CWA. "Waters of the U.S." is a broad term, which includes waters that are used or could be used for interstate commerce. This includes wetlands, ponds, lakes, territorial seas, rivers, tributary streams including any definable intermittent waterways, and some ditches below the ordinary high water mark (OHWM). Also included are manmade water bodies such as quarries and ponds, which are no longer actively being mined or constructed and are connected to other "waters". Wetlands, mudflats, vegetated shallows, riffle and pool complexes, coral reefs, sanctuaries, and refuges are all considered special aquatic sites, which involve more rigorous regulatory permitting requirements. A specific, detailed definition of "waters of the U.S." can be found in the Federal Register (33 CFR 328.3).

On January 9, 2001, the U.S. Supreme Court issued a decision, *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers* (No. 99-1178). The decision reduced the regulation of isolated wetlands under Section 404 of the CWA, which assigned the USACE authority to issue permits for the discharge of dredge or fill material into "waters of the U.S.". Prior to the SWANCC decision, the USACE had adopted a regulatory definition of "waters of the U.S." that afforded federal protection for almost all of the nation's wetlands. The Supreme Court decision interpreted that the USACE's jurisdiction was restricted to navigable waters, their tributaries, and wetlands that are adjacent to these navigable waterways and tributaries. The decision leaves the majority of "isolated" wetlands unregulated by the CWA. Therefore, most wetlands that are not adjacent to, or contiguous with, any other "waters of the U.S." via a surface drain such as a swale, ditch, or stream are considered isolated and thus no longer jurisdictional by the USACE.

On June 19, 2006, the U.S. Supreme Court issued decisions in regards to *John A. Rapanos v. United States* (No. 04-1034) and *June Carabell v. United States* (04-1384), et al. The plurality decision created two 'tests' for determining CWA jurisdiction: the permanent flow of water test (set out by Justice Scalia) and the "significant nexus" test (set out by Justice Kennedy). On June 5, 2007 the USACE and U.S. Environmental Protection Agency (EPA) issued joint guidance on how to interpret and apply the Court's ruling. According to this guidance, the USACE will assert jurisdiction over traditionally navigable waters, adjacent wetlands, and non-navigable tributaries of traditionally navigable waters that have "relatively permanent" flow, and wetlands that border these waters, regardless of whether or not they are separated by roads, berms, and similar barriers. In addition, the USACE will use a case-by-case "significant nexus" analysis to determine whether waters and their adjacent wetlands are jurisdictional. A "significant nexus" can be found where waters, including adjacent wetlands, alter the physical, biological, or chemical integrity of the traditionally navigable water based on consideration of several factors.

In January 2015 an EPA sponsored publication, *Connectivity of Streams & Wetlands to Downstream Waters: A Review & Synthesis of the Scientific Evidence* (EPA, 2015), emphasized how streams, non-tidal wetlands, and open waters in and outside of riparian areas and floodplains effect downstream waters such as rivers, lakes, estuaries, and oceans.

On May 27, 2015 the EPA released a statement that a new Clean Water Rule typically referred to as, "The Waters of the United States (WOTUS) Rule" was finalized and that it would "not create any new permitting requirements and maintains all previous exemptions and exclusions" (epa.gov). The rule would only protect waters that have historically been covered by the Clean Water Act. The intent was to clearly define:

- Jurisdictional limits of tributaries of navigable waterways;
- Set boundaries on covering nearby waters;
- Identify specific national water treasures by name (prairie potholes, etc.);
- Clearly define when a ditch is jurisdictional, and when it is not;
- Maintain status that waters within Municipal Separate Storm Water Sewer Systems (MS4) are not jurisdictional; and
- Reduce the use of case-specific analysis of waters.

Also on May 27, 2015 a publication, *Technical Support Document for the Clean Water Rule: Definition of Waters of the United States* (EPA, 2015), was released discussing in detail why the significant nexus (SNE) between one water and another is important. It specifically ties distances to the various types of waters mentioned within the Code of Federal Regulations [33 CFR

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Summary: Application of Duke Energy Ohio, Inc. Port Union to Mulhauser Rebuild Project
electronically filed by Carys Cochern on behalf of Duke Energy