

**CONSTRUCTION NOTIFICATION FOR THE  
LINE A000B NATURAL GAS PIPELINE REPLACEMENT PROJECT**

**PUCO Case Number 18-498-GA-BNR**

**Submitted pursuant to O.A.C. 4906-6**

**Duke Energy Ohio, Inc.**

**April 2018**



**CASE NO. 18-498-GA-BNR**  
**LINE A000B NATURAL GAS PIPELINE REPLACEMENT**  
**LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO**

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This Construction Notification (CN) has been prepared by Duke Energy Ohio, Inc. (Duke Energy Ohio or Company), in accordance with the procedures set forth in Ohio Administrative Code (O.A.C.) Chapter 4906-6 Accelerated Certificate Application Requirements of the Rules and Regulations of the Ohio Power Siting Board (OPSB or Board).

**4906-6-05 APPLICATION REQUIREMENTS**

**4906-06-05(B)(1)(a): Name of the Project and Applicant's Reference Number**

Duke Energy Ohio is proposing to construct a natural gas pipeline identified as the Line A000B Pipeline Replacement Project in Liberty Township, Butler County, Ohio. The internal project reference number is 18-498-GA-BNR

**4906-06-05(B)(1)(b): Brief Description of the Project**

Duke Energy Ohio proposes to replace approximately 1,971 feet (0.37 miles) of existing natural gas pipeline in Butler County, Ohio. The new 20-inch diameter steel pipeline will be installed within existing Duke Energy Ohio Right-of-Way (ROW). Access to the replacement pipeline will be accomplished using a parking lot to the south of the project and an existing gravel access from Yankee Road to the north, combined with approximately 130 linear feet of new access through secondary growth woodlot. The existing pipeline is proposed to be abandoned in-place once the Project is in operation.

**4906-06-05(B)(1)(c): Why the Project Meets the Requirements for a Construction Notification**

The project qualifies as a Construction Notification filing because it meets the criteria of O.A.C. Rule 4906-1-01, Appendix B, that provides for (1) new construction, extension, relocation, upgrade, or replacement (except with a like facility) of gas pipelines or pipeline segments (a) not greater than 1 mile in length.



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**4906-06-05(B)(2): Statement of Need for the Proposed Facility**

Duke Energy Ohio currently transports natural gas in the existing A000b line as part of the distribution pipeline system that ultimately supplies end use customers. This replacement is being completed for integrity and compliance purposes, as Duke Energy Ohio does not possess sufficient historic integrity documentation, including testing records for segment 5020 that are necessary to meet recent and more stringent requirements of the Pipeline and Hazardous Safety Administration. Two solutions to address the insufficient documentation issue were evaluated: pressure testing or replacing the pipeline. Replacement was selected as the better and safer alternative in lieu of pressure testing. The Company determined that, due to the risks of pressure testing associated with existing age of the pipeline, weld type, and risk of pipeline rupture during testing, and the fact that most of the pipeline is in a high consequence area, replacement was the optimal solution. The new pipeline will increase pipeline integrity and safety while continuing to provide reliable service to the end use customers.

**4906-06-05(B)(3): Location of the Project**

The location of this project is illustrated on Figures 1 and 2 in Attachment 1. Figure 1 shows the general project vicinity illustrated on a U.S. Geological Survey (USGS) quadrangle map. Figure 2 illustrates the proposed replacement pipeline project limits and the existing pipeline that is to be abandoned in place on an aerial base map.

**4906-06-05(B)(4): Alternatives Considered**

As stated in Section 4906-06-05(B)(1)(b), above, Duke Energy Ohio proposes to replace approximately 1,971 feet (0.37 miles) of existing natural gas pipeline. Given that the project's purpose is to replace an existing pipeline, Duke Energy Ohio's primary siting objective was to locate the proposed replacement pipeline within the existing pipeline easement, to the extent practical.

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**4906-06-05(B)(5): Description of Public Information Program**

The Company has sent a letter to property owners and tenants listed on Attachment 2, informing them of the nature of the project, the proposed timeframe of the project construction, and restoration activities. Individual face-to-face meetings have also occurred or been planned following the letter notification to discuss the disturbance each landowner will encounter during construction. Notification letters were sent the week of September 6, 2017, to all parties identified on Attachment 2.

**4906-06-05(B)(6): Anticipated Construction Schedule and Proposed In-Service Date**

Construction on the replacement pipeline is anticipated to begin in June 2018. Duke Energy Ohio plans to place the line in-service by September 2018.

**4906-06-05(B)(7): Project Area Map with Aerial Image**

Project area maps with an aerial image at 1:2,100 scale, showing roads and major watercourses, are included as Figure 2 in Attachment 1.

**4906-06-05(B)(8): Property Owner List**

A list of the affected properties for which Duke Energy Ohio has obtained easements, options, and/or land use agreements is given in Attachment 2. Easements have been obtained from all affected property owners. Landowner permission has also been received for the additional access through the wooded area to the north.

**4906-06-05(B)(9): Technical Features**

**4906-06-05(B)(9)(a): Operating Characteristics, Required Structures, and Right-of-Way and/or Land Requirements**

The following information summarizes the operating characteristics and construction specifications for the proposed replacement 20-inch diameter pipeline:

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- **Pipe Material:** 20-inch diameter steel pipeline. The new pipeline will also contain a buried, 20-inch diameter, ANSI 600, mainline valve with two buried, 4-inch diameter, ANSI 300 blow-off valves on each side of the mainline valve. The valves and blow-off valves will be accessed by valve boxes that are at ground level.
- **Normal Operating Pressure:** Below the MAOP of 150 psi
- **Pipe Wall Thickness and Yield Strength:** 0.375 inch thickness with a yield strength of 65,000 psi
- **Coating Type:** The pipeline will be externally coated with 14-16 Mils of Fusion Bonded Epoxy.
- **Cathodic Protection:** The new pipeline segments will be cathodically protected by the rectifier currently protecting Line A000b. Each tie-in point will contain a monolithic weld-in joint to join the new steel pipeline to the existing steel pipeline.
- **Structures:** No additional structures will be required for the new pipeline.
- **ROW and/or Land Requirement:** The land needed for pipeline construction and operation is the entirety of Duke Energy Ohio's existing 50-foot wide easement. Temporary construction easements have been obtained on the north and south ends of the pipeline for ingress/egress and material/equipment laydown areas.

**4906-06-05(B)(9)(b): Electric and Magnetic Fields**

This Project involves the construction of a natural gas pipeline; therefore, this section is not applicable.

**4906-06-05(B)(9)(c): Estimated Capital Cost of the Project**

The capital cost of this Project is estimated to be approximately \$2,200,000.

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**4906-06-05(B)(10): Social and Ecological Impacts of the Project**

**4906-06-05(B)(10)(a): Land Use**

The proposed Project is located in Liberty Township, Butler County, Ohio. Land use in the area includes a paved commuter parking lot at the south end of the project, a segmented strip of tree line in between properties, private residences to the east, a woodlot to the northwest, and an existing Duke Energy Ohio gas pipeline monitoring station at the north of the project.

**4906-06-05(B)(10)(b): Agricultural Land**

The proposed project does not cross any land that is currently used for agricultural purposes and is not located within any Agricultural District lands as defined by Chapter 929 of the Ohio Revised Code; therefore, this section is not applicable.

**4906-06-05(B)(10)(c): Archeological and Cultural Resources**

In March 2018, Civil & Environmental Consultants, Inc., (CEC) cultural resource professionals performed a Desktop Review of archeological and cultural resources for the project area (Attachment 6). The review included the 1,971 feet (0.37 miles) of existing ROW, additional workspace areas, and points of access. The vicinity of the project, up to 1 mile from the project, was submitted for a literature review.

The literature review included a record search of Ohio Historic Inventory Properties, Ohio Genealogical Society cemeteries, Ohio Tax Credit Projects, National Register listed properties, National Register listed districts, Determinations of eligibility properties, Ohio Archaeological Inventory properties, and Phase 1, 2, or 3 survey areas. According to the record search, no historic or archeological sites or properties are present within the project area.

Duke Energy Ohio submitted a project summary to the Ohio Historic Preservation Office (OHPO) including a recommendation for no further cultural resources work, on March 16, 2018. The OHPO response will be forwarded to the project docket.

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**4906-06-05(B)(10)(d): Local, State, and Federal Governmental Agencies Which Have Requirements That Must be Met by the Project**

The following governmental agencies have requirements that must be met at various times by this project:

<b>TABLE 1.</b> <b>GOVERNMENTAL AGENCIES WHICH HAVE PROJECT APPLICABLE REQUIREMENTS, AUTHORIZATIONS OR PERMITS</b>	
<b>AGENCY</b>	<b>DOCUMENT TO BE SUBMITTED</b>
U.S. Army Corps of Engineers – Huntington District	Preliminary Jurisdictional Determination Request and Wetland & Waterbody Delineation Report
U.S. Fish & Wildlife Service	Rare, Threatened, and Endangered Species Consultation
Ohio Department of Natural Resources	Rare, Threatened, and Endangered Species Consultation
Ohio Historic Preservation Office	Section 106 Coordination
Ohio Environmental Protection Agency	NOI for General Construction Stormwater Permit
Ohio Environmental Protection Agency	Hydrostatic Test Water – General Permit
Butler County	Erosion and Sediment Control (ESC) Earth Moving Permit (EMP)
	Stormwater Pollution Prevention Plan

**4906-06-05(B)(10)(e): Federal and State Designated Species**

In February 2018, CEC, on behalf of Duke Energy Ohio, conducted a threatened and endangered species habitat assessment of the Project area for federally listed species known to occur within Butler County, Ohio. According to the U.S. Fish & Wildlife

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Service's (USFWS) County Distribution List of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species for Butler County, Ohio, the following species were identified as occurring, or potentially occurring in the Project area: the Indiana bat (*Myotis sodalis*, endangered), northern long-eared bat (*Myotis septentrionalis*, threatened), rayed bean mussel (*Villosa fabalis*, endangered), Eastern massasauga (*Sistrurus catenatus*, threatened), and the running buffalo clover (*Trifolium stoloniferum*, endangered). The bald eagle (*Haliaeetus leucocephalus*) is also listed as a species of special concern.

In addition to reviewing the USFWS's County Distribution List, the Ohio Department of Natural Resources (ODNR) - Division of Wildlife's County Distribution List of State Listed Wildlife Species was consulted for federally listed endangered or threatened species as occurring, or potentially occurring, in Butler County. The ODNR's County Distribution List identified the Indiana bat and rayed bean as well as the cave salamander (*Eurycea lucifuga*, Endangered - state), plains clubtail (*Gomphus externus*, Endangered - state), fawnsfoot (*Truncilla donaciformis*, Threatened - state), Sloan's crayfish (*Orconectes sloanii*, Threatened - state) and the spotted turtle (*Clemmys guttata*, Threatened - state).

The Project area was evaluated by a team of two CEC biologists on February 12, 2018, to document existing vegetation communities, hydrologic conditions, and other habitat characteristics. Each type of habitat present within the Project area was qualitatively evaluated for its potential to be suitable habitat for the running buffalo clover, Indiana bat, northern long-eared bat, rayed bean mussel, and eastern massasauga. The habitat assessment revealed potentially suitable habitat for the running buffalo clover, Indiana bat, and the northern long-eared bat. Potentially suitable freshwater mussel habitat was not identified, based on the absence of streams and lakes within the Project area. The Threatened and Endangered Species Habitat Assessment Report and Running Buffalo Clover Report are included as Attachment 5.

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**Running Buffalo Clover**

The running buffalo clover (RBC) habitat survey revealed approximately 0.58 acres within the vicinity of the Project met the habitat considerations as potential RBC habitat. The remaining areas within the Project study corridor do not provide suitable habitat conditions for the RBC based on one or more of the following habitat considerations: extent of disturbance, solar exposure, soil saturation, and/or a dense understory. CEC subsequently conducted a RBC survey on the potential habitat that was identified in the Project area. No RBC individuals or populations were observed during the survey. The survey was conducted following standard methods and guidelines for endangered plant surveys, as approved by the USFWS, which included a species-specific survey within potentially suitable habitat during the flowering period, using a known local population, to allow for positive identification of the species.

**Indiana and Northern Long-Eared Bats**

Living or dead trees with shedding or peeling bark or cavities may serve as roosting trees for the Indiana bat and/or northern long-eared bat. A field review completed by CEC identified 1 potential roost tree (PRT) for the Indiana and/or northern long-eared bats within the limit of disturbance for the Project; however, this PRT is not proposed to be removed between March 31 and October 1. Removal of non-habitat trees in the ROW is proposed to occur between April 1 and September 30.

Duke Energy Ohio submitted written requests for findings to the USFWS and the ODNR on February 26, 2018, regarding any adverse effect to any federally listed, threatened, or endangered species in the Project area. The USFWS and ODNR response letters are included in Attachment 6. Both agencies recommend that seasonal tree clearing for the project should only occur between October 1 and March 31 to avoid adverse effects to listed bat species. Implementation of seasonal tree clearing is not feasible, as construction is proposed to begin in June 2018. Therefore, CEC on behalf of

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Duke Energy Ohio will conduct a summer bat survey in early June 2018, to ascertain probable presence or absence of federally listed bat species within the project vicinity. Results of this summer bat survey will be provided to USFWS for its concurrence with the findings, and a record of the survey report and USFWS concurrence letter will be forwarded to the project docket.

**4906-06-05(B)(10)(f): Areas of Ecological Concern**

There are no national and state forests and parks, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, refuges, management areas, and sanctuaries in the Project area.

In February 2018, CEC conducted a wetland and waterbody delineation and assessment within the study corridor for the Project. Two wetlands within the study area, totaling approximately 0.13 acres, were identified and delineated. No streams or open water aquatic resources were identified within the study corridor. Construction of the Project is proposed to impact the emergent Wetland 1, totaling approximately 0.02 acre. Wetland 2 will be avoided by the project through limiting the project workspace in the woodlot to the northwest.

**4906-06-05(B)(10)(g): Any Unusual Conditions Resulting in Significant Environmental, Social, Health, or Safety Impacts**

As illustrated by the studies and investigations conducted as a part of this project to date (refer to the Attachments), there are no readily known unusual conditions in the area of the proposed project that will result in significant environmental impacts. Additionally, because this project proposes to replace an existing pipeline within existing private easement, there has already been prior ground disturbance and maintenance in the area. Other than potential health and safety issues associated with construction, which will be minimized with the best practices during construction, there are no additional health, social or safety impacts that will exist as a result of this project.



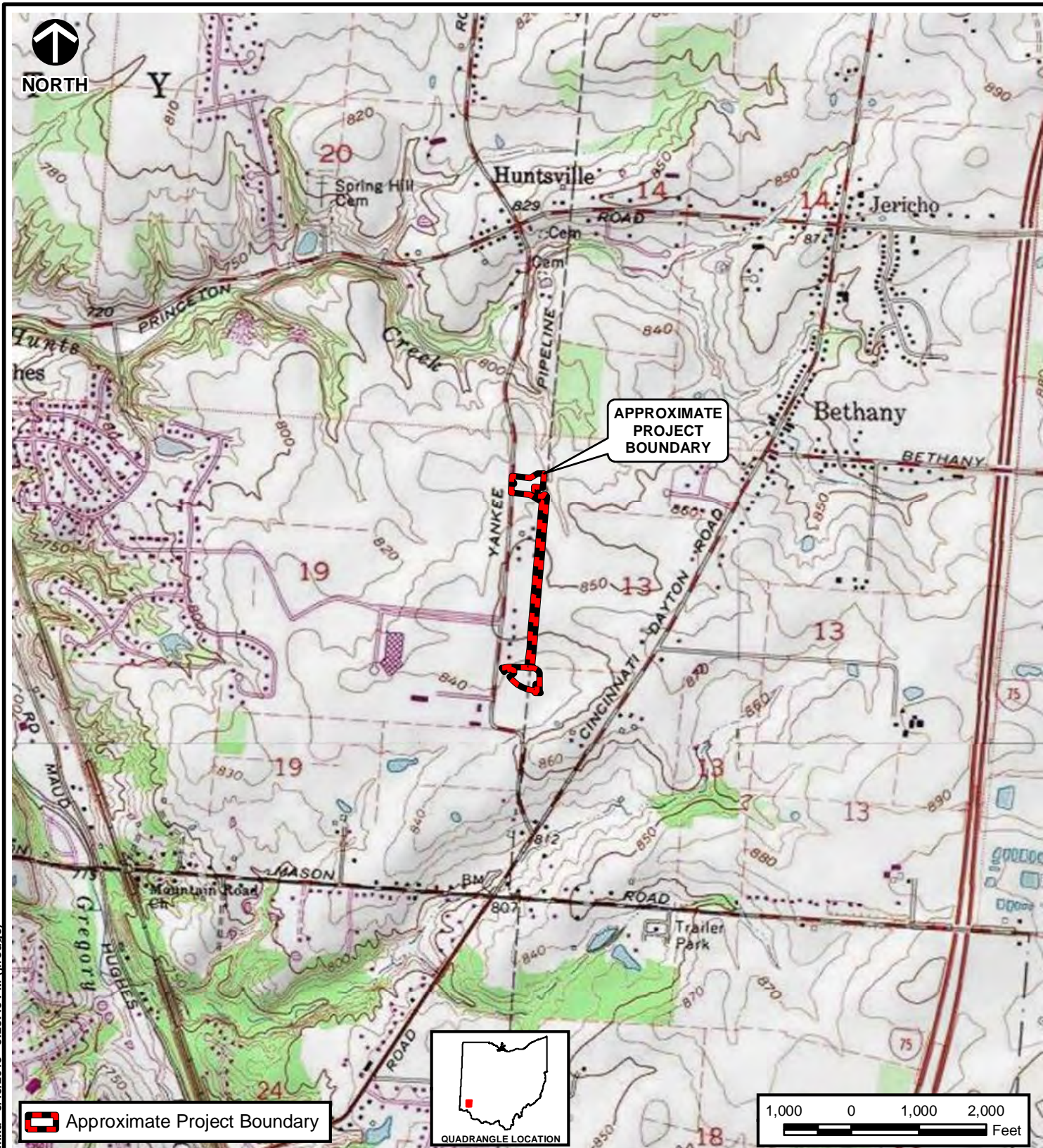
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**ATTACHMENT 1**

**FIGURES**

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P:\2016\164-513\GIS\164513 Figure 1 CN.mxd - 3/15/2018 - 5:28:45 PM (lfrodge)



SOURCE: PORTION OF THE USGS 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAPS - TRENTON, OHIO - 1983, GLENDALE, OHIO - 1982, MASON, OHIO - 1982, & MONROE, OHIO - 1975



### Civil & Environmental Consultants, Inc.

5899 Montclair Boulevard - Cincinnati, OH 45150

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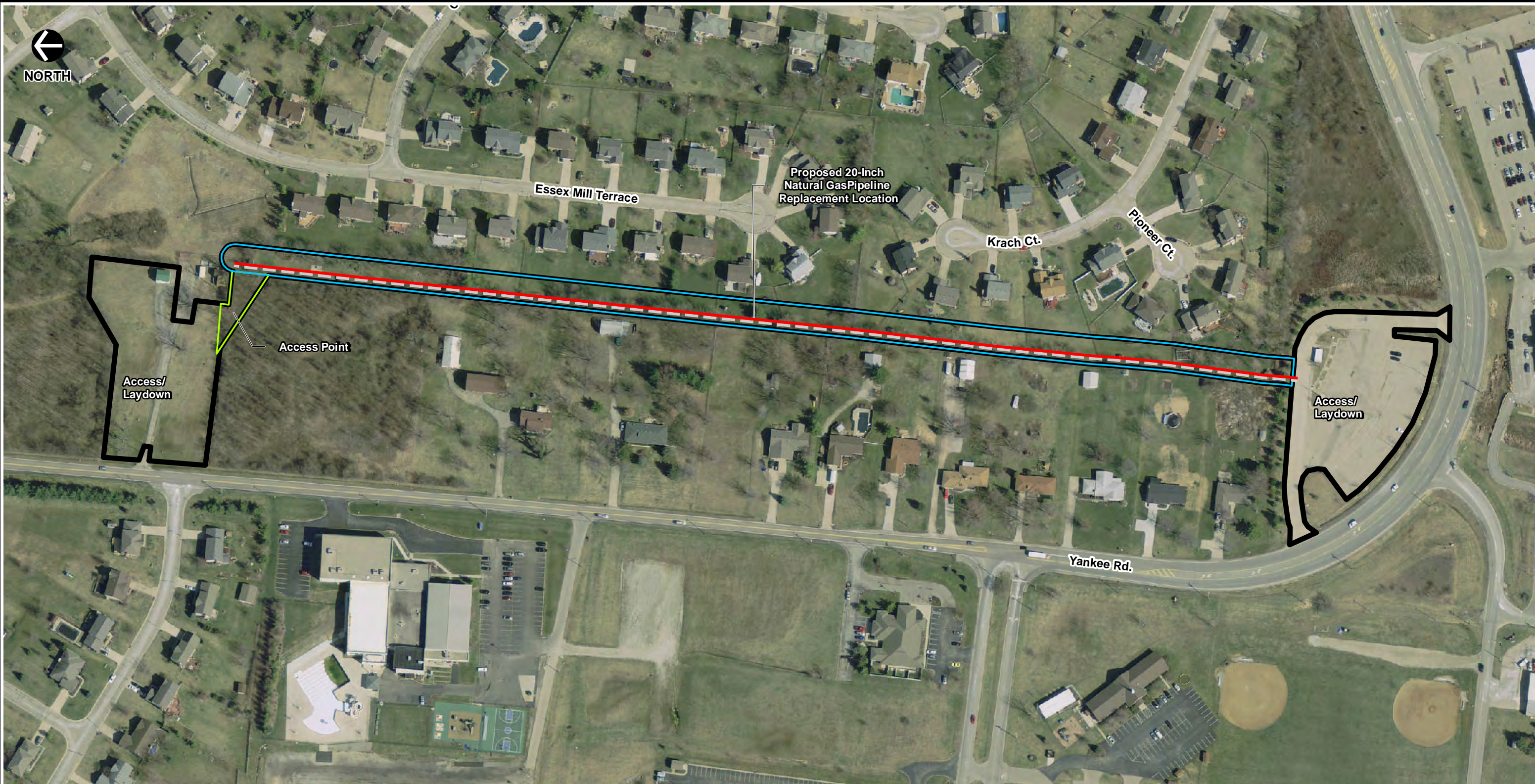
DUKE ENERGY  
LINE A000B PIPELINE  
REPLACEMENT PROJECT  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

### PROJECT LOCATION MAP

DRAWN BY:	MHS	CHECKED BY:	JBK	APPROVED BY:	JMV*	FIGURE NO:
DATE:	MARCH 15, 2018	DWG SCALE:	1" = 2,000'	PROJECT NO:	164-513	1

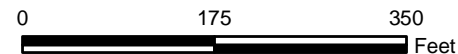
Signature on File \*





**LEGEND**

- Proposed 20-Inch Diameter Natural Gas Pipeline Replacement
- Existing 18-Inch Diameter Natural Gas Pipeline to be Abandoned In-Place
- Approximate Project Limits
- Existing Right-of-Way
- Project Temporary Access



SOURCE: ESRI WORLD IMAGERY / ARCGIS MAP SERVICE; HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD\_IMAGERY, ACCESSED 3/15/2018.  
IMAGE DATE: 8/6/2016



**Civil & Environmental Consultants, Inc.**

5899 Montclair Boulevard - Cincinnati, OH 45150  
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www.cecinc.com

DUKE ENERGY  
LINE A000B PIPELINE  
REPLACEMENT PROJECT  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

AERIAL MAP

DRAWN BY:	DMG	CHECKED BY:	JBF	APPROVED BY:	JBF*	FIGURE NO:
DATE:	MARCH 15, 2018	DWG SCALE:	1" = 175'	PROJECT NO:	164-513	<b>2</b>

Signature on File \*

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**ATTACHMENT 2**

**LANDOWNERS OF PERMANENT AND TEMPORARY EASEMENTS**

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**LANDOWNERS OF PERMANENT & TEMPORARY EASEMENTS**

Parcel ID	Owner	Owner Addresses			
		Physical Address		Mailing Address	
D2010017000037	Cincinnati Gas & Electric Co.	0 Yankee Road	Liberty Township, Ohio 45044	550 S Tyron St #DEC41B	Charlotte, North Carolina 28201
D2020166000034	Kathleen M Jansen	6623 English Oaks	Liberty Township, Ohio 45044	6623 English Oaks	Liberty Township, Ohio 45044
D2020166000035	Virginia & James Jackson	6633 English Oaks	Liberty Township, Ohio 45044	6633 English Oaks	Liberty Township, Ohio 45044
D2020166000037	Kathy Egler & Tod Booth	7210 Essex Mill	Liberty Township, Ohio 45044	7210 Essex Mill	Liberty Township, Ohio 45044
D2010017000038	Cincinnati Gas & Electric Co.	0 Yankee Road	Liberty Township, Ohio 45044	550 S Tyron St #DEC41B	Charlotte, North Carolina 28201
D2010013000001	Cincinnati Gas & Electric Co.	0 Yankee Road	Liberty Township, Ohio 45044	550 S Tyron St #DEC41B	Charlotte, North Carolina 28201
D2020166000038	Andreotta Marcos & Julianne Steele	7188 Essex Mill Terrace	Liberty Township, Ohio 45044	7188 Essex Mill Terrace	Liberty Township, Ohio 45044
D2010017000036	Kirk Wilson	6716 Yankee Road	Liberty Township, Ohio 45044	3994 Hollansburg Sampson Road	Greenville, Ohio 45331
D2020166000039	Kimball Sigala	7172 Essex Mill Terrace	Liberty Township, Ohio 45044	7172 Essex Mill Terrace	Liberty Township, Ohio 45044
D2020166000040	Kevin & Susan Hughes	7162 Essex Mill Terrance	Liberty Township, Ohio 45044	7162 Essex Mill Terrance	Liberty Township, Ohio 45044
D2020166000041	Steve & Michelle Pache	7152 Essex Mill Terrace	Liberty Township, Ohio 45044	7152 Essex Mill Terrace	Liberty Township, Ohio 45044
D2020128000005	Rebecca Grewe	7142 Essax Mill Terrace	Liberty Township, Ohio 45044	7142 Essax Mill Terrace	Liberty Township, Ohio 45044
D2020128000006	Charles & Catherine Werner	7132 Essax Mill Terrace	Liberty Township, Ohio 45044	7132 Essax Mill Terrace	Liberty Township, Ohio 45044
D2020128000007	David James & Karen Sue Dostal	7122 Essex Mill Terrace	Liberty Township, Ohio 45044	7122 Essex Mill Terrace	Liberty Township, Ohio 45044
D2020128000008	Andrew Petty	7112 Essex Mill Terrace	Liberty Township, Ohio 45044	7112 Essex Mill Terrace	Liberty Township, Ohio 45044
D2020127000006	Richard & Jeanne Grevenkamp	7102 Essex Mill Terrace	Liberty Township, Ohio 45044	7102 Essex Mill Terrace	Liberty Township, Ohio 45044
D2010017000035	Robin Purcell	6744 Yankee Road	Liberty Township, Ohio 45044	6744 Yankee Road	Liberty Township, Ohio 45044
D2020127000007	Daniel & Michelle Edwards	7092 Essex Mill Terrace	Liberty Township, Ohio 45044	7092 Essex Mill Terrace	Liberty Township, Ohio 45044
D2020127000008	Bruce & Connie McGaffin	7088 Essex Mill Terrace	Liberty Township, Ohio 45044	7088 Essex Mill Terrace	Liberty Township, Ohio 45044
D2020058000010	Joey Bunch	6786 Yankee Road	Liberty Township, Ohio 45044	6786 Yankee Road	Liberty Township, Ohio 45044
D2020058000007	Millenium Properties & Construction LLC	6804 Yankee Road	Liberty Township, Ohio 45044	6570 Cincinnati Dayton Road	Middletown, Ohio 45044
D2020127000038	Dale & Joliea Smith	7217 Krach Court	Liberty Township, Ohio 45044	7217 Krach Court	Liberty Township, Ohio 45044
D2020127000039	James & Jami Wallbank	7227 Krach Court	Liberty Township, Ohio 45044	7227 Krach Court	Liberty Township, Ohio 45044
D2020058000006	Marty & Timothy McGrath	6822 Yankee Road	Liberty Township, Ohio 45044	6822 Yankee Road	Liberty Township, Ohio 45044
D2020058000005	Donald Snider	6840 Yankee road	Liberty Township, Ohio 45044	6840 Yankee road	Liberty Township, Ohio 45044
D2020127000040	AMH 2015 2 Borrower LLC	7237 Krach Court	Liberty Township, Ohio 45044	30601 Agoura Road suite 200	Agoura Hills, California 91301
D2020058000004	James & Leesa Alford	6846 Yankee road	Liberty Township, Ohio 45044	6846 Yankee road	Liberty Township, Ohio 45044
D2020127000041	Christopher & Mary Kuhlman	7245 Krach Court	Liberty Township, Ohio 45044	7245 Krach Court	Liberty Township, Ohio 45044
D2020058000003	Delores Keeton	6860 Yankee Road	Liberty Township, Ohio 45044	6860 Yankee Road	Liberty Township, Ohio 45044
D2020127000043	Joel & Laura Willis	6877 Pioneer Court	Liberty Township, Ohio 45044	6877 Pioneer Court	Liberty Township, Ohio 45044
D2020058000002	Ida Mae McClure	6874 Yankee Road	Liberty Township, Ohio 45044	6874 Yankee Road	Liberty Township, Ohio 45044
D2020127000044	Coralann Lewis	6887 Pioneer Court	Liberty Township, Ohio 45044	6887 Pioneer Court	Liberty Township, Ohio 45044
D2020058000001	Joseph Werling	6888 Yankee Road	Liberty Township, Ohio 45044	PO Box 1685	West Chester, Ohio 45071
D2010013000091	Butler County Transportation Improvement District	0 Cincinnati Dayton Road	Liberty Township, Ohio 45044	1921 Fairgrove Avenue	Hamilton, Ohio 45011
D2010017000090	Butler County Transportation Improvement District	0 Yankee Road	Liberty Township, Ohio 45044	1921 Fairgrove Avenue	Hamilton, Ohio 45011
D2010017000089	Butler County Transportation Improvement District	0 Yankee Road	Liberty Township, Ohio 45044	1921 Fairgrove Avenue	Hamilton, Ohio 45011
D2010013000090	Butler County Transportation Improvement District	0 Cincinnati Dayton Road	Liberty Township, Ohio 45044	1921 Fairgrove Avenue	Hamilton, Ohio 45011



March 15, 2018

Mr. Steve Lane, CPESC, AICP, PMP  
Senior Environmental Scientist/Planner  
Duke Energy Ohio, Inc.  
139 East Fourth Street, Room EM740  
Cincinnati, OH 45202

Dear Steve:

Subject: Wetland and Waterbody Delineation Report  
Line A000b Natural Gas Pipeline Replacement Project  
Liberty Township, Butler County, Ohio  
CEC Project 164-513

Civil & Environmental Consultants, Inc. (CEC) is pleased to present the attached wetland and waterbody delineation report for the Duke Energy Ohio, Inc. (Duke Energy) Line A000b Natural Gas Pipeline Replacement Project (Project), located in Liberty Township, Butler County, Ohio. CEC's services were provided in accordance with the Master Consulting Services Agreement, effective June 1, 2015, between Duke Energy and CEC, and our proposal dated November 22, 2016. We appreciate the opportunity to be of service to Duke Energy on this project. Please call us if you have any questions regarding the attached report.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Dustin Giesler  
Staff Scientist

Jon Frodge  
Project Manager

Attachment – Wetland and Waterbody Delineation Report

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# **WETLAND AND WATERBODY DELINEATION REPORT**

## **LINE A000B NATURAL GAS PIPELINE REPLACEMENT PROJECT LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO**

**PREPARED FOR:  
DUKE ENERGY OHIO, INC.  
139 EAST FOURTH STREET  
CINCINNATI, OHIO 45202**

**PREPARED BY:  
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CINCINNATI, OHIO**

**CEC Project 164-513**

**March, 2018**



**Civil & Environmental Consultants, Inc.**

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## **1.0 INTRODUCTION**

### **1.1 GENERAL INFORMATION**

This report presents the findings of a wetland and waterbody delineation conducted by Civil & Environmental Consultants, Inc. (CEC) for the Duke Energy Ohio, Inc. (Duke Energy) within the Line A000b Natural Gas Pipeline Replacement Project, located in Liberty Township, Butler County, Ohio (the Project). CEC understands that Duke is proposing to conduct a natural gas pipeline replacement. The Project will be accessed from a Duke owned facility on Yankee Road. The 8.76-acre Project survey boundary is bound by a maintained lawns to the east, Yankee Road and maintained lawns to the west, first growth/second growth forest to the north and slightly to the west, and a 1.71-acre level parking lot to the south. The Project survey boundary is located within and adjacent to existing, maintained Duke Energy natural gas pipeline right-of-way (ROW). The location of the Project survey boundary with respect to principal roads and surface features is indicated on Figure 1.

CEC conducted the field reconnaissance portion of the jurisdictional waters delineation on February 12, 2018.

### **1.2 METHODOLOGY**

This report identifies delineated wetlands, streams (ephemeral, intermittent, and perennial), and other potentially regulated waters within the Project survey boundary. The methodology for conducting the wetland and waterbody delineation is presented below.

#### **1.2.1 Wetlands**

The wetland delineation was conducted using the routine on-site determination method described in the United States Army Corps of Engineers (USACE) 1987 Corps Manual (USACE Manual)

and the USACE (2010) *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Version 2.0* (Midwest Regional Supplement). The wetland boundaries, where present, were delineated using the routine onsite determination method described in the USACE Manual and Midwest Regional Supplement, supplemented by the *National Wetland Plant List: 2016 Wetland Ratings* (Lichvar 2016) and the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2016). CEC conducted the following scope of services to identify and delineate wetland boundaries within the Project survey boundary:

1. Office Data Review: Prior to the site reconnaissance, a review was conducted of publicly available data resources, associated with topography and historically mapped soils and wetlands, in the vicinity of the Project survey boundary, in order to identify potential wetland areas. General site topography was assessed using the U.S. Geological Survey (USGS) topographic quadrangle map of Trenton, Glendale, Mason, and Monroe, Ohio (Figure 1). Soils information for Butler County, Ohio is available online from the Web Soil Survey through the USDA NRCS. Soils information in the vicinity of the Project survey boundary is displayed on Figure 2.

National Wetlands Inventory (NWI) maps, prepared by the United States Fish and Wildlife Service, are based on high altitude infrared aerial photography and limited ground truthing. NWI designated areas depict wetlands and deep water habitats and are classified according to the system developed by Cowardin et al. (1979). Accordingly, NWI data reflect conditions during the specific year and season in which the aerial photography was acquired and all wetlands may not be indicated. Similarly, the Ohio Wetlands Inventory (OWI) is based on analysis of satellite data and is intended solely as an indicator of wetland sites for which field review should be conducted. The OWI was developed in cooperation with the Ohio Department of Natural Resources (ODNR), Division of Wildlife and the USDA NRCS to provide a statewide inventory of wetlands. The OWI is useful in general planning and environmental analyses. The wetland areas shown do not necessarily meet the definition of a regulatory wetland. Mapped NWI and OWI wetlands in the vicinity of the Project survey boundary are shown on Figure 3.

2. Site Reconnaissance: The site reconnaissance portion of the wetland and waterbody delineation was performed on February 12, 2018. First, plant communities present within the Project survey boundary were identified. The dominant plant species within each community were identified and a determination was made on whether the plant community was dominated by hydrophytic (wetland) plants. If areas that appeared to be dominated by hydrophytic plants were identified within the Project survey boundary, a representative test site was located within the plant community and soils were sampled using a spade shovel to determine if hydric soil indicators were present. Lastly, the test site was inspected to determine if indicators of wetland hydrology (ponding, soil saturation, etc.) were present. If a test site was determined to be within a wetland, further testing was to be performed to locate the wetland/non-wetland boundary and a second test site was to be established

outside the wetland boundary to document conditions in the non-wetland area. If found, the boundaries of areas having the three necessary criteria were to be marked in the field with vinyl flagging and subsequently located using a sub-meter accuracy Trimble Geo-XT Global Positioning System (GPS) unit.

3. Data Collection: CEC photographed the test site location and vegetation communities located within the Project survey boundary. Representative photographs of these locations are included in Appendix A. Regional Supplement wetland determination data forms for the onsite determination method were prepared for potential wetland areas that were observed within the Project survey boundary. The wetland determination data forms provide a record of the vegetation, soils, and hydrology observations used in making the wetland determinations. The completed wetland determination data forms are provided in Appendix B.
4. Functional Assessment of Wetland Areas: CEC conducted a functional assessment on the delineated wetlands that were identified within the Project survey boundary using the Ohio Rapid Assessment Method (ORAM version 5.0) for wetlands (Mack 2001). The ORAM characterizes wetlands into one of three categories (Category 1, 2, or 3) based upon their functions, value, and overall quality. Category 1 wetlands typically have minimal functions and low quality, are often dominated by invasive species, and are often hydrologically isolated. Category 2 wetlands typically have moderate or intermediate functions and quality. Category 3 wetlands typically have superior functions and quality and may include wetlands which provide habitat for threatened and endangered species or contain unique habitats. Although the ORAM only lists three categories of wetlands, some wetlands fall into “gray zones” that exist between the categories. These wetlands must be further assessed by using either another technique or professional judgment. A preliminary wetland score was determined based on interpretation of ORAM results in accordance with narrative criteria in OAC 3745-1-54(C) and guidance in the Ohio EPA’s *ORAM v. 5.0 Quantitative Score Calibration* (Mack, 2000). The preliminary ORAM forms are provided in Appendix C.

### 1.2.2 Streams

In addition to the identification of wetlands, CEC identified streams within the Project survey boundary that would likely be considered jurisdictional by the USACE and/or the Ohio Environmental Protection Agency (Ohio EPA). Using professional judgment and field indicators such as flow, substrate composition, embeddedness, defined bed and bank, vegetation, and benthic macroinvertebrates, CEC classified on-site stream segments into one of three stream types: ephemeral, intermittent, and perennial. The following descriptions are provided to clarify the different stream classifications.

- Ephemeral Stream – An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for this stream flow regime.
- Intermittent Stream – An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. Typically these streams flow regularly during the spring and fall when ground water tables are elevated. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for this stream flow regime.
- Perennial Stream – A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for this stream flow regime.

The uppermost limit of an ephemeral stream is determined at the point where the stream loses its defined "bed and bank" or ordinary high water mark (OHWM) and a predominance of upland vegetation occurs in the channel. Under natural, undisturbed conditions, streams generally originate as headwater ephemeral drainages along the tops of ridges, transition into intermittent stream systems, and eventually transition into perennial stream systems.

The interpreted limits of each stream segment within the Project survey boundary were recorded in the field using a Trimble GeoXT GPS unit. CEC also conducted a habitat evaluation of the on-site streams using the Ohio EPA Headwater Habitat Evaluation Index ([HHEI] Ohio EPA 2012) and/or Qualitative Habitat Evaluation Index ([QHEI] Ohio EPA 2006), depending upon the watershed size and/or predominant natural pool depths. For on-site primary headwater habitat (PHWH) streams (those with drainage areas equal to or less than one square mile or predominant natural pools that are equal to or less than 15.75 inches in depth), the HHEI classifies the streams into one of three categories: ephemeral (PHWH Class I), intermittent (PHWH Class II/III), or perennial (PHWH Class II/III). The stream receives a "Modified" designation from the HHEI assessment if the stream is recovering from historic stream channel modification or exhibits recent or no recovery from past modification.

For larger streams that exceed the maximum pool depths or drainage area criteria set forth by the HHEI methodology, the QHEI assessment classifies streams into general narrative ranges based

on the total score and also provides a general indication on the aquatic life habitat use designation. The narrative ratings and corresponding QHEI scoring ranges are provided below in Table 1.

<b>TABLE 1 GENERAL NARRATIVE RANGES ASSIGNED TO QHEI SCORES</b>		
<b>Narrative Rating</b>	<b>QHEI Scoring Range</b>	
	<b>Headwaters</b>	<b>Larger Streams</b>
Excellent	≥70	≥75
Good	55 to 69	60 to 74
Fair	43 to 54	45 to 59
Poor	30 to 42	30 to 44
Very Poor	<30	<30

Ohio Water Quality Standards (OAC 3745-1) are designed to provide a basis for protecting and restoring surface waters for a variety of uses, including protection and propagation of aquatic life. Aquatic life protection criteria consist of tiered aquatic life uses which are defined in OAC 3745-1-07. These include Warmwater Habitat (WWH), Exceptional Warmwater Habitat (EWH), Coldwater Habitat (CWH), Seasonal Salmonid Habitat (SSH) and Limited Resource Waters (LRW), which is linked with Modified Warm Water Habitats (MWH).

The WWH use designation defines the “typical” warmwater assemblage of aquatic organisms for Ohio rivers and streams. This use represents the principal restoration target for the majority of water resource management efforts in Ohio.

The EWH use designation is reserved for waters that support “unusual and exceptional” assemblages of aquatic organisms which are characterized by a high species diversity, particularly those which are intolerant and/or rare, threatened, endangered, or special status (i.e., declining species). This designation represents a protection goal for Ohio’s water resources.

The MWH designation applies to highly modified habitats that support the semblance of a warmwater biological community, but where the community falls short of attaining the WWH biological criteria because of functional and structural alterations of the macro-habitat. Examples include streams that have been channelized, straightened and/or heavily impounded and streams

that are experiencing heavy sedimentation. MWH habitats are commonly low in dissolved oxygen (DO), elevated in ammonia, and/or nutrient enriched.

The LRW use designation applies to small streams and other water courses which have been irretrievably altered to the extent that no appreciable assemblage of aquatic life can be supported. Such waterways generally include small streams in urbanized areas, those which lie in watersheds with extensive drainage modifications and those which completely lack water on a recurring basis.

### 1.2.3 Open Water Bodies

The locations of ponds, lakes, or other open water bodies, where present within the Project survey boundary, were recorded using a Trimble Geo-XT GPS unit during the site reconnaissance.

## **2.0 FINDINGS**

### **2.1 HYDROLOGY**

The Project survey boundary is situated in the Gregory Creek [Hydrologic Unit Code (HUC) 050800020705] watershed. Elevations within the Project survey boundary are mapped to range from approximately 840 feet above mean sea level, at the southern portion and the northern portion of the Project survey boundary, to 850 feet above mean sea level, in the central portion of the Project survey boundary. The northern portion of the Project survey boundary drains to Hunt's Creek and the southern half drains to an UNT to Gregory Creek. Hunt's Creek is a tributary to Gregory Creek. The total drainage area of Gregory Creek within the Project survey boundary is approximately <1 square miles. The Project survey boundary is not located within a FEMA Special Flood Hazard Area (Figure 4).

### **2.2 SOILS**

The NRCS (USDA 2016) identifies seven (7) soil types within the Project survey boundary (Table 2, Figure 2). Three (3) of the soil map units are classified by the USDA as hydric, indicating the potential for encountering wetlands within portions of the Project survey boundary covered by these units..



<b>TABLE 2 SOILS INFORMATION</b>			
<b>Soil Map Unit Symbol</b>	<b>Soil Mapping Unit Name</b>	<b>Drainage Class</b>	<b>NRCS Hydric Soil Designation</b>
DaB	Dana silt loam, 2 to 6 percent slopes	Moderately Well Drained	Hydric Inclusions
FcA	Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	Somewhat poorly drained	Hydric Inclusions
FdB	Fincastle silt loam, bedrock substratum, 2 to 6 percent slopes	Somewhat poorly drained	Not Hydric
Pa	Patton silty clay loam, 0 to 2 percent slopes	Poorly drained	Hydric
RwB	RwB - Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes	Well drained	Not Hydric
WyB2	WyB2 - Wynn silt loam, 2 to 6 percent slopes	Well drained	Not Hydric
WyC2	WyC2 - Wynn silt loam, 6 to 12 percent slopes, moderately eroded	Well drained	Not Hydric

## 2.3 NATIONAL AND STATE WETLAND INVENTORY MAPS

### 2.3.1 NATIONAL WETLAND INVENTORY MAP

No mapped NWI wetlands were identified within the Project survey boundary at the time that this report was prepared (Figure 3).

### 2.3.2 OHIO WETLAND INVENTORY MAP

No mapped OWI wetlands were identified within the Project survey boundary at the time that this report was prepared (Figure 3).

## **2.3 NATIONAL HYDROGRAPHY DATASET STREAMS**

No mapped National Hydrography dataset (NHD) streams were mapped within the Project survey boundary at the time this report was prepared (Figure 3).

## **2.4 VEGETATION**

The vegetation found within the wetland determination test site has been detailed in the individual wetland determination data forms provided in Appendix B. Representative photographs of the vegetation types found within the wetland determination test site is included in Appendix A. Dominant plant species comprising this plant community was identified and the USFWS wetland plant indicator status was determined according to Lichvar (2016). The USFWS has defined five wetland plant indicator categories, which include:

- Obligate Wetland (OBL – has >99% probability of occurring in wetlands);
- Facultative Wetland (FACW – has 66% to 99% chance of occurring in wetlands);
- Facultative (FAC – has 33% to 66% chance of occurring in wetlands);
- Facultative Upland (FACU – has 1 to 33% chance of occurring in wetlands); and,
- Upland (UPL – has <1% chance of occurring in wetlands).

Plants classified as OBL, FACW, or FAC are considered to be wetland plants (hydrophytes) by the USFWS and USACE.

## **2.5 WETLANDS**

Data were collected from five wetland determination sample points using the on-site wetland determination method described above in Section 1.2.1. Based on the findings at these sample points, one (1) palustrine emergent (PEM) and one (1) PEM/palustrine shrub/scrub (PSS) wetlands were identified within the Project survey boundary. The approximate locations of the sample points and wetlands are shown on Figure 4 and Figures 5A to 5C. Representative photographs can be found in Appendix A. The wetland determination data forms are provided in Appendix B and

preliminary ORAM forms are presented in Appendix C. Additional details regarding the wetlands are provided below and summarized in Table 3.

**Wetland 1**, a PEM wetland, is located in the southern portion of the Project survey boundary. Wetland 1 is located in a depression within a maintained lawn and Duke owned right-of-way, and is approximately 0.02 acres within the Project survey boundary (Figure 4 and Figures 5A to 5C). Based on an ORAM score of 23.5, this wetland was classified as a low quality, Category 1 wetland (Appendix C). At the sample point of the wetland, the plant community is dominated by fringed sedge (*Carex crinita*, OBL). The hydric soil indicators were hydrogen sulfide and 2 cm of muck. Indicators of wetland hydrology included surface water, high water table, saturation, water-stained leaves, hydrogen sulfide odor, geomorphic condition and FAC-neutral test.

**Wetland 2**, a PEM/PSS wetland, is located in the northern portion of the Project. Wetland 2 is located in a depression within a wooded area near Yankee Road (Figure 4 and Figure 5A). The PEM portion of the wetland is approximately 0.10 acre and the PSS portion was approximately 0.01 acre. Based on an ORAM score of 37, this wetland was classified as a medium quality, Modified Category 2 wetland (Appendix C). At the sample point for the PEM portion of the wetland, the plant community is dominated by lesser poverty rush (*Juncus tenuis*, FAC) and common fox sedge (*Carex vulpinoidea*, FACW). The hydric soil indicator was redox dark surface. Indicators of wetland hydrology included surface water, high water table, saturation, water-stained leaves, drainage patterns, geomorphic position, and FAC neutral test. At the sample point for the PSS portion of the wetland, plant community is dominated by silky dogwood (*Cornus amomum*, FACW). The hydric soil indicator was redox dark surface. Indicators of wetland hydrology included high water table, saturation, water-stained leaves, drainage patterns geomorphic position, and FAC neutral test.

**TABLE 3  
WETLAND FEATURES SUMMARY**

<b>Wetland ID</b>	<b>Cowardin Classification<sup>1</sup></b>	<b>Coordinates (Latitude, Longitude)</b>	<b>Wetland Determination Sample Point ID</b>	<b>Photograph Numbers</b>	<b>Preliminary ORAM Score</b>	<b>Preliminary ORAM Category<sup>2</sup></b>	<b>Delineated Area<sup>3</sup> (Acres)</b>
Wetland 1	PEM	39.3774, -84.3834	SP-1	1-4	23.5	1	0.02
Wetland 2	PEM/PSS	39.3824, -84.3837	SP-3, SP-4	7-14	37	Modified 2	0.11
<b>Total Wetland Acreage within the Project survey boundary</b>							<b>0.13</b>

<sup>1</sup>As determined by the USACE's Waters Upload Sheet

<sup>2</sup>Scoring for ORAM v 5.0: Category 1 = 0 - 29.9; Category 1 or 2 Gray Zone = 30 - 34.9; Category Modified 2 = 35 - 44.9; Category 2 = 45 - 59.9; Category 2 or 3 = 60 - 64.9; Category 3 = 65 - 100. ORAM v. 5.0 Quantitative Score Calibration, Last Revised: August 15, 2000. [http://epa.ohio.gov/portals/35/401/oram50sc\\_s.pdf](http://epa.ohio.gov/portals/35/401/oram50sc_s.pdf)

<sup>3</sup>Acreage within the Project survey boundary

## 2.6 STREAMS

No streams were identified within the Project survey boundary.

## 2.7 OPEN WATER BODIES

No open water features were identified within the Project survey boundary.

## 2.8 DITCHES

CEC identified two (2) drainage ditches along the southern and western boundaries of the forested area, in the northern portion of the Project survey boundary. The approximate locations of the ditches are shown on Figure 5A.

## 3.0 CONCLUSIONS

CEC identified two potentially jurisdictional wetlands totaling approximately 0.13 acres, within the Project survey boundary. Additionally, two likely non-jurisdictional ditches, totaling approximately 458 linear feet were identified. Since the USACE has authority to determine and/or verify the geographical boundaries of waters of the U.S. this investigation was termed "preliminary" to this point. As requested, CEC will submit a copy of this report to the Huntington District of the USACE for written verification of the findings.

#### **4.0 LEVEL OF CARE**

The wetland and stream delineation services performed by CEC were conducted in a manner consistent with the criteria contained in the USACE Manual and Midwest Regional Supplement and with the level of care and skill ordinarily exercised by members of the environmental consulting profession practicing contemporaneously under similar conditions in the locality of the project. It must be recognized that the jurisdictional waters delineation was based on field observations and CEC's professional interpretation of the criteria in the USACE Manual and Midwest Regional Supplement at the time of our fieldwork. Wetland and stream determinations may change subsequent to CEC's delineation based on changes in the regulatory criteria, seasonal variations in hydrology, alterations to drainage patterns and other human activities and/or land disturbances.

## 5.0 REFERENCES

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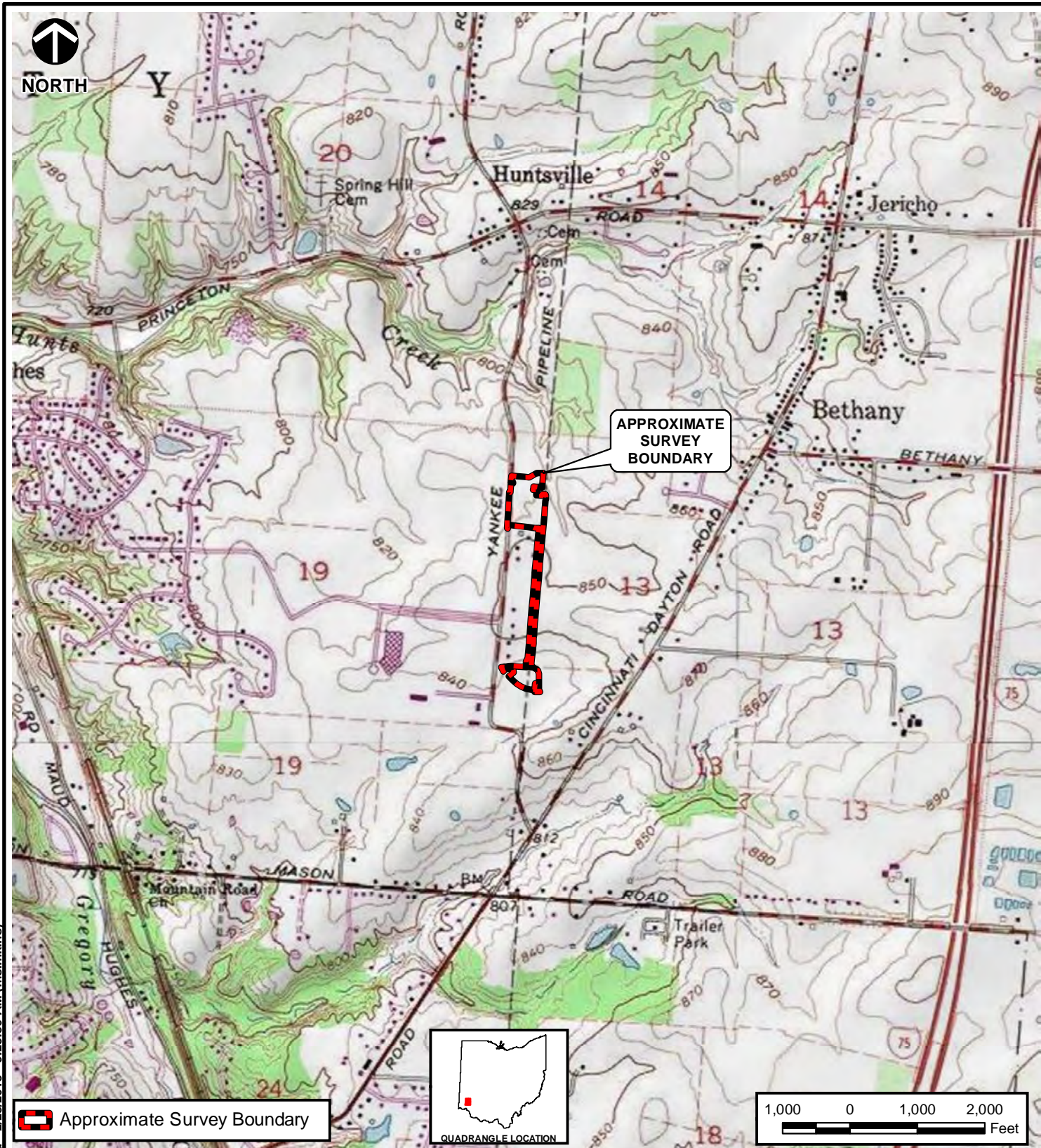
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## **FIGURES**

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SOURCE: PORTION OF THE USGS 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAPS - TRENTON, OHIO - 1983, GLENDALE, OHIO - 1982, MASON, OHIO - 1982, & MONROE, OHIO - 1975



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DUKE ENERGY  
LINE A000B PIPELINE  
REPLACEMENT PROJECT  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

### SURVEY BOUNDARY MAP

DRAWN BY:	MHS	CHECKED BY:	JB	APPROVED BY:	JMV*	FIGURE NO:
DATE:	FEBRUARY 23, 2018	DWG SCALE:	1" = 2,000'	PROJECT NO:	164-513	1

Signature on File \*



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- ◇ DaB - Dana silt loam, 2 to 6 percent slopes
- ◇ FcA - Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes
- ◇ FdB - Fincastle silt loam, bedrock substratum, 2 to 6 percent slopes
- ◇ Pa - Patton silty clay loam, 0 to 2 percent slopes
- ◇ Rwb - Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes
- ◇ WyB2 - Wynn silt loam, 2 to 6 percent slopes
- ◇ WyC2 - Wynn silt loam, 6 to 12 percent slopes, moderately eroded

**LEGEND**

- ▬ Project Survey Boundary
- ▬ USDA Soil Boundary

SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012



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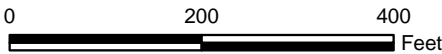
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USDA SOILS MAP

DRAWN BY:	MHS	CHECKED BY:	DMG	APPROVED BY:	JMV*	FIGURE NO:
DATE:	MARCH 09, 2018	DWG SCALE:	1" = 200'	PROJECT NO:	164-513	<b>2</b>

Signature on File \*



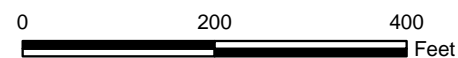




**LEGEND**

- Project Survey Boundary
- National Hydrography Dataset (NHD)
- National Wetland Inventory (NWI)
- Ohio Wetland Inventory (OWI)

*Note: No NHD streams, NWI or OWI wetlands are within the extent of this map*



SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012



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NATIONAL WETLANDS INVENTORY (NWI) AND  
NATIONAL HYDROGRAPHY DATASET (NHD)  
WATERBODY MAP

DRAWN BY:	MHS	CHECKED BY:	DMG	APPROVED BY:	JMV*	FIGURE NO:
DATE:	MARCH 09, 2018	DWG SCALE:	1" = 200'	PROJECT NO:	164-513	<b>3</b>

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- LEGEND**
- Project Survey Boundary
  - Approximate Pipeline Replacement Location
  - Delineated Palustrine Emergent Wetland (PEM)
  - Delineated Palustrine Shrub/Scrub Wetland (PSS)
  - Drainage Ditch
  - Map Index
  - FEMA 100-Year Floodplain

0 200 400 Feet

SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012



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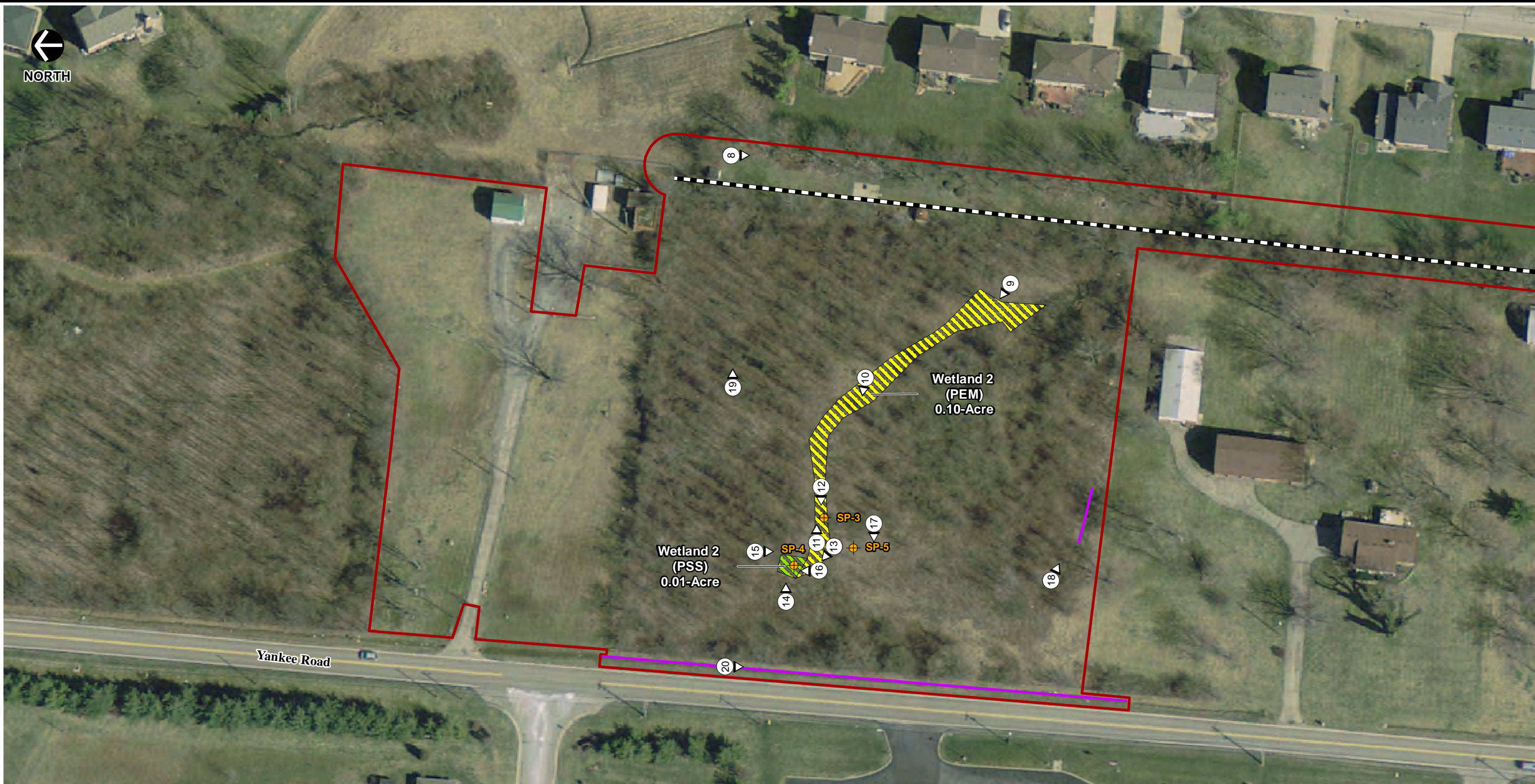
WETLAND AND WATERBODY DELINEATION  
INDEX MAP

DRAWN BY:	MHS	CHECKED BY:	DMG	APPROVED BY:	JMV*	FIGURE NO:
DATE:	MARCH 09, 2018	DWG SCALE:	1" = 200'	PROJECT NO:	164-513	<b>4</b>

Signature on File \*



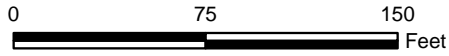
P:\2016\164-513-GIS\164513 LineA000b WWD Figure 5A-5C Delineation.mxd - 3/9/2018 - 7:06:13 PM (msimkins)



**LEGEND**

- Project Survey Boundary
- Approximate Pipeline Replacement Location
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Shrub/Scrub Wetland (PSS)
- Wetland Sample Point
- Drainage Ditch
- FEMA 100-Year Floodplain

Note: FEMA 100-Year Flood Zone is not within the extent of this map.



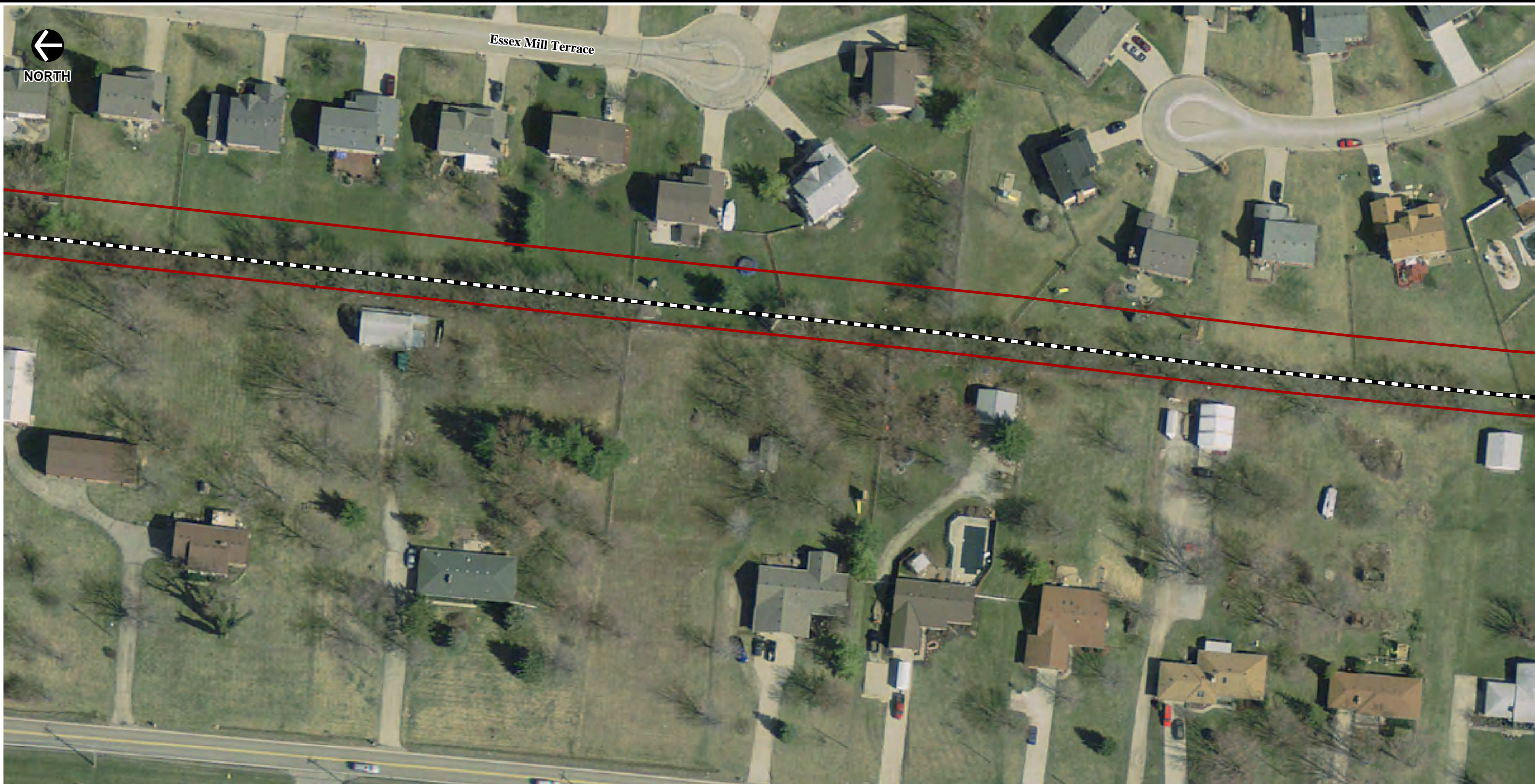
SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012

 <b>Civil &amp; Environmental Consultants, Inc.</b> 5899 Montclair Boulevard - Cincinnati, OH 45150 513-985-0226 - 800-759-5614 www.cecinc.com		DUKE ENERGY LINE A000B PIPELINE REPLACEMENT PROJECT LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO	
		WETLAND AND WATERBODY DELINEATION MAP	
DRAWN BY: MHS	CHECKED BY: DMG	APPROVED BY: JMV*	FIGURE NO: 5A
DATE: MARCH 09, 2018	DWG SCALE: 1" = 75'	PROJECT NO: 164-513	

Signature on File \*



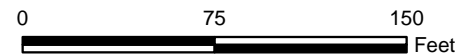
P:\2016\164-513\GIS\164513 LineA000b WWD Figure 5A-5C Delineation.mxd - 3/9/2018 - 7:06:18 PM (msimkins)



**LEGEND**

- Project Survey Boundary
- Approximate Pipeline Replacement Location
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Shrub/Scrub Wetland (PSS)
- Wetland Sample Point
- Drainage Ditch
- FEMA 100-Year Floodplain

Note: FEMA 100-Year Flood Zone is not within the extent of this map.



SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012

 <b>Civil &amp; Environmental Consultants, Inc.</b> 5899 Montclair Boulevard - Cincinnati, OH 45150 513-985-0226 - 800-759-5614 www.cecinc.com		DUKE ENERGY LINE A000B PIPELINE REPLACEMENT PROJECT LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO	
		WETLAND AND WATERBODY DELINEATION MAP	
DRAWN BY:	MHS	CHECKED BY:	DMG
DATE:	MARCH 09, 2018	DWG SCALE:	1" = 75'
APPROVED BY:	JMV*	PROJECT NO:	164-513
			FIGURE NO: <b>5B</b>

Signature on File \*

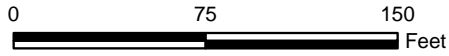





**LEGEND**

- Project Survey Boundary
- Approximate Pipeline Replacement Location
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Shrub/Scrub Wetland (PSS)
- Wetland Sample Point
- Drainage Ditch
- FEMA 100-Year Floodplain

Note: FEMA 100-Year Flood Zone is not within the extent of this map.



SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012

<div> <b>Civil &amp; Environmental Consultants, Inc.</b> 5899 Montclair Boulevard - Cincinnati, OH 45150 513-985-0226 - 800-759-5614 www.cecinc.com</div>	APPROVED BY: <b>JMV*</b>	FIGURE NO: <b>5C</b>
DRAWN BY: <b>MHS</b>	CHECKED BY: <b>DMG</b>	PROJECT NO: <b>164-513</b>
DATE: <b>MARCH 09, 2018</b>	DWG SCALE: <b>1" = 75'</b>	

Signature on File \*

P:\2016\164-513-GIS\164513 LineA000b WWD Figure 5A-5C Delineation.mxd - 3/9/2018 - 7:06:23 PM (msimkins)



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**APPENDIX A**

**SITE PHOTOGRAPHS**

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*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 1. Representative view of Wetland 1 (PEM). Photograph taken facing to the west.



Photograph 2. Representative view of Wetland 1 (PEM). Photograph taken facing to the west.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 3. Representative view of Wetland 1 (PEM). Photograph taken facing to the east.



Photograph 4. Representative view of Wetland 1 (PEM) sample point (SP-1).



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 5. Representative view of Wetland 1 (PEM) upland sample point (SP-2).



Photograph 6. Representative view of Wetland 1 upland sample point (SP-2) vicinity. Photograph taken facing to the southeast.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 7. Representative view of maintained lawn/existing ROW habitat in southern portion of replacement pipeline area of impact. Photograph taken facing to the south.



Photograph 8. Representative view of maintained lawn/existing ROW habitat in northern portion of replacement pipeline area of impact. Photograph taken facing to the south.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 9. Representative view of eastern side of Wetland 2 (PEM portion). Photograph taken facing to the west.



Photograph 10. Representative view of middle area Wetland 2 (PEM portion). Photograph taken facing to the west.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 11. Representative view of western side of Wetland 2 (PEM portion). Photograph taken facing to the east.



Photograph 12. Representative view of Wetland 2 (PEM portion) sample point (SP-3) vicinity. Photograph taken facing to the west.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 13. Representative view of southeastern area of Wetland 2 (PSS portion). Photograph taken facing to the west.



Photograph 14. Representative view of northern area of Wetland 2 (PSS portion). Photograph taken facing to the east.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 15. Representative view of western area of Wetland 2 (PSS portion). Photograph taken facing to the south.



Photograph 16. Representative view of Wetland 2 (PSS portion) sample point (SP-4).



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 17. Representative view of upland SP-5 habitat. Photograph taken facing south.



Photograph 18. Representative view of drainage ditch in southwest corner of young second growth forest habitat. Photograph taken facing to the east.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 19. Representative view of northeastern wooded portion of the woodlot that is intended for tree clearing. Photograph taken facing to the east.



Photograph 20. Representative view of drainage ditch on the western side of young second growth forest habitat. Photograph taken facing to the south.

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**APPENDIX B**

**WETLAND DETERMINATION DATA FORMS**

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# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A000B 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-1  
 Investigator(s): Dustin Giesler, Melanie Simkins Section, Township, Range: 19, Liberty Twp, 3N  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave  
 Slope (%): 2% Lat: 39.377467 Long: -84.385463 Datum: NAD83  
 Soil Map Unit Name: Pa-Patton Silty Clay Loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <u>Wetland 1 REM</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. _____				
2. _____				
3. _____				
= Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Carex cincta</u>	<u>100%</u>	<u>Y</u>	<u>OBL</u>	
2. _____				
3. _____				
= Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u> )				
1. _____				
2. _____				
= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
SP-1

## SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR 2-2	100					Silty	mucky

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- ☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☒ Hydrogen Sulfide (A4)  
☐ Stratified Layers (A5)  
☒ 2 cm Muck (A10)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)  
☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Coast Prairie Redox (A16)  
☐ Dark Surface (S7)  
☐ Iron-Manganese Masses (F12)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or Crust (B4)  
☐ Iron Deposits (B5)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Sparsely Vegetated Concave Surface (B8)

- ☒ Water-Stained Leaves (B9)  
☐ Aquatic Fauna (B13)  
☐ True Aquatic Plants (B14)  
☒ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres on Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Gauge or Well Data (D9)  
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Stunted or Stressed Plants (D1)  
☒ Geomorphic Position (D2)  
☒ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes ☒ No \_\_\_\_\_ Depth (inches): 7"  
 Water Table Present? Yes ☒ No \_\_\_\_\_ Depth (inches): 8"  
 Saturation Present? Yes ☒ No \_\_\_\_\_ Depth (inches): 0-18"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Line A000b 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-2  
 Investigator(s): Dustin Giesler, Melanie Simkins Section, Township, Range: 19, Liberty Twp, 3N  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none  
 Slope (%): 0 Lat: 39.377434 Long: -84.383470 Datum: NAD83  
 Soil Map Unit Name: Pa-Patton Silty Clay Loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Upland sample point</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. <u>Pinus resinosa</u>	<u>50%</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Picea pungens</u>	<u>15%</u>	<u>N</u>	<u>FAL</u>	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>180</u> x 4 = <u>720</u> UPL species <u>10</u> x 5 = <u>50</u> Column Totals: <u>205</u> (A) <u>815</u> (B) Prevalence Index = B/A = <u>3.97</u>
3. <u>Pinus strobus</u>	<u>30%</u>	<u>Y</u>	<u>FACU</u>	
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____	_____	_____	_____	
<u>95%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. <u>Lonicera maackii</u>	<u>10%</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>10%</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				Remarks: (Include photo numbers here or on a separate sheet.)
1. <u>Poa annua</u>	<u>100%</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>100%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				



## SOIL

Sampling Point: SP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR 3/1	90	10YR 4/6	10	C	M	Silty clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)           |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)               |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)           |
| <input type="checkbox"/> Stratified Layers (A5)            | <input type="checkbox"/> Loamy Gleyed Matrix (F2)           |
| <input type="checkbox"/> 2 cm Muck (A10)                   | <input type="checkbox"/> Depleted Matrix (F3)               |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)         |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)             |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)      |   |

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16)        |
| <input type="checkbox"/> Dark Surface (S7)                |
| <input type="checkbox"/> Iron-Manganese Masses (F12)      |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_
Hydric Soil Present? Yes ☒ No ☐

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

## Primary Indicators (minimum of one is required; check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Fauna (B13)                        |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> True Aquatic Plants (B14)                  |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9)                    |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   | <input type="checkbox"/> Other (Explain in Remarks)                 |

## Secondary Indicators (minimum of two required)

- |  |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6)                  |
| <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1)           |
| <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> FAC-Neutral Test (D5)                     |

## Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A000B 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-3  
 Investigator(s): Dustin Gruber, Melanie Simkins Section, Township, Range: 19, Liberty TWP, 3N  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave  
 Slope (%): 2% Lat: 39.382420 Long: -84.383779 Datum: NAD 83  
 Soil Map Unit Name: RuB - Russell - Miamian silt loams, bedrock substratum, 2 to 6% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <u>Wetland 2 PEM</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b>				
1. <u>Cornus amomum</u>	<u>10%</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
<b>Herb Stratum (Plot size: <u>5'</u>)</b>				
1. <u>Paspalum flaccidum</u>	<u>5%</u>	<u>N</u>	<u>FACU</u>	
2. <u>Juncus tenuis</u>	<u>40%</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Carex vulpina</u>	<u>30%</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Potamogeton amplifolius</u>	<u>10%</u>	<u>N</u>	<u>FAC</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<b>Woody Vine Stratum (Plot size: <u>30'</u>)</b>				
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

## SOIL

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	95	10YR 4/4	5	C	M	Silt clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)           |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)               |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)           |
| <input type="checkbox"/> Stratified Layers (A5)            | <input type="checkbox"/> Loamy Gleyed Matrix (F2)           |
| <input type="checkbox"/> 2 cm Muck (A10)                   | <input type="checkbox"/> Depleted Matrix (F3)               |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)         |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)             |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)      |   |

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Coast Prairie Redox (A16)  
☐ Dark Surface (S7)  
☐ Iron-Manganese Masses (F12)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input checked="" type="checkbox"/> Water-Stained Leaves (B9)       |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Aquatic Fauna (B13)                        |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> True Aquatic Plants (B14)                  |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9)                    |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   | <input type="checkbox"/> Other (Explain in Remarks)                 |

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☒ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Stunted or Stressed Plants (D1)  
☒ Geomorphic Position (D2)  
☒ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 1"  
 Water Table Present? Yes ☒ No ☐ Depth (inches): 6"  
 Saturation Present? Yes ☒ No ☐ Depth (inches): 0"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A000B 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-4  
 Investigator(s): Dustin Giesler, Melanie Simkins Section, Township, Range: 19, Liberty TWP, 30  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): none  
 Slope (%): 2% Lat: 39.382488 Long: -84.383939 Datum: NAD 83  
 Soil Map Unit Name: RWB - Russell - Miamian silt loams, bedrock substratum, 2 to 6% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <u>Wetland 2 PSS</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. <u>Cornus amomum</u>	<u>60%</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Juncus tenuis</u>	<u>10%</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Amphicarpaea bracteata</u>	<u>2%</u>	<u>N</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
= Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u> )				
1. _____				
2. _____				
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

## SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	95	10YR 4/4	5	C	M	Silt	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- ☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Stratified Layers (A5)  
☐ 2 cm Muck (A10)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)  
☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☒ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Coast Prairie Redox (A16)  
☐ Dark Surface (S7)  
☐ Iron-Manganese Masses (F12)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or Crust (B4)  
☐ Iron Deposits (B5)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Sparsely Vegetated Concave Surface (B8)

- ☒ Water-Stained Leaves (B9)  
☐ Aquatic Fauna (B13)  
☐ True Aquatic Plants (B14)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres on Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Gauge or Well Data (D9)  
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Stunted or Stressed Plants (D1)  
☒ Geomorphic Position (D2)  
☒ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 1/4"  
 Water Table Present? Yes ☒ No ☐ Depth (inches): 5"  
 Saturation Present? Yes ☒ No ☐ Depth (inches): 0"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A008 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-5  
 Investigator(s): Dustin Giesler, Melanie Simkins Section, Township, Range: 19, Liberty TWP, 3N  
 Landform (hillslope, terrace, etc.): Woodlot Local relief (concave, convex, none): none  
 Slope (%): 0 Lat: 39.382360 Long: -84.383862 Datum: NAD 83  
 Soil Map Unit Name: RuB - Russell-Miamian silt loams, bedrock substratum, 2 to 6% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Upland</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
1. <u>Pycnos calleryana</u>	<u>15%</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>25</u> x 5 = <u>125</u> Column Totals: <u>70</u> (A) <u>260</u> (B) Prevalence Index = B/A = <u>3.71</u>
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. <u>Pycnos calleryana</u>	<u>10%</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Cornus amomum</u>	<u>20%</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Lonicera japonica</u>	<u>10%</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: ____ 1 - Rapid Test for Hydrophytic Vegetation ____ 2 - Dominance Test is >50% ____ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Amphicarpaea bracteata</u>	<u>5%</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Fragaria virginiana</u>	<u>10%</u>	<u>Y</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u> )				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

## SOIL

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/2	100					Silt <sub>2</sub>	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- ☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Stratified Layers (A5)  
☐ 2 cm Muck (A10)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)  
☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Coast Prairie Redox (A16)  
☐ Dark Surface (S7)  
☐ Iron-Manganese Masses (F12)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No ☒

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)  
☐ High Water Table (A2)  
☐ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or Crust (B4)  
☐ Iron Deposits (B5)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Sparsely Vegetated Concave Surface (B8)

- ☐ Water-Stained Leaves (B9)  
☐ Aquatic Fauna (B13)  
☐ True Aquatic Plants (B14)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres on Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Gauge or Well Data (D9)  
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Stunted or Stressed Plants (D1)  
☐ Geomorphic Position (D2)  
☐ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



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**APPENDIX C**

**OHIO RAPID ASSESSMENT METHOD FORMS**

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<b>Version 5.0</b>	<b>Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization</b>	
	<b>Background Information</b> <b>Scoring Boundary Worksheet</b> <b>Narrative Rating</b> <b>Field Form Quantitative Rating</b> <b>ORAM Summary Worksheet</b> <b>Wetland Categorization Worksheet</b>	Ohio EPA, Division of Surface Water Final: February 1, 2001

### Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

## Background Information

Name:	Dustin Giesler
Date:	2/12/18
Affiliation:	CEL
Address:	5899 Montclair BLVD, Milford, OH, 45150
Phone Number:	513 - 985-0226
e-mail address:	dgiesler@CELinc.com
Name of Wetland:	
Vegetation Community(ies):	PEM
HGM Class(es):	Riverine
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
<p>See CEL Wetland &amp; Waterbody Delineation Report</p>	
Lat/Long or UTM Coordinate	39.377467, -84.383463
USGS Quad Name	Trenton
County	Butler
Township	Liberty Township
Section and Subsection	19
Hydrologic Unit Code	HUC12: 050800020706 Gregory Creek
Site Visit	2/12/18
National Wetland Inventory Map	N/A
Ohio Wetland Inventory Map	N/A
Soil Survey	Pa - Patton silty clay loam
Delineation report/map	See CEL Wetland & Waterbody Delineation Report

Name of Wetland: <u>Wetland 1</u>	
Wetland Size (acres, hectares):	<u>0.02 acres</u>
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.  <div style="text-align: center; padding-top: 50px;"> <p>See CEC, Wetland &amp; Waterbody Delineation report</p> </div>	
Comments, Narrative Discussion, Justification of Category Changes:  <div style="text-align: center; padding-top: 50px;"> <p>See CEC Wetland &amp; Waterbody delineation Report</p> </div>	
Final score :	<div style="display: flex; justify-content: space-between;"> <span><u>23.5</u></span> <span>Category: <u>1</u></span> </div>

## Scoring Boundary Worksheet

**INSTRUCTIONS.** The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

**End of Scoring Boundary Determination. Begin Narrative Rating on next page.**

## Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	<b>Critical Habitat.</b> Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 2	NO Go to Question 2
2	<b>Threatened or Endangered Species.</b> Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES  Wetland is a Category 3 wetland.  Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES  Wetland is a Category 3 wetland  Go to Question 4	NO Go to Question 4
4	<b>Significant Breeding or Concentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES  Wetland is a Category 3 wetland  Go to Question 5	NO Go to Question 5
5	<b>Category 1 Wetlands.</b> Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES  Wetland is a Category 1 wetland  Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral pH (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 8a	NO Go to Question 8a
8a	<b>"Old Growth Forest."</b> Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES  Wetland is a Category 3 wetland.  Go to Question 8b	NO Go to Question 8b



8b	<b>Mature forested wetlands.</b> Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES  Wetland should be evaluated for possible Category 3 status.  Go to Question 9a	<input checked="" type="radio"/> NO Go to Question 9a
9a	<b>Lake Erie coastal and tributary wetlands.</b> Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES  Go to Question 9b	<input checked="" type="radio"/> NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10	NO  Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES  Go to Question 9d	NO  Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES  Wetland is a Category 3 wetland  Go to Question 10	NO  Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10.	NO  Go to Question 10
10	<b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES  Wetland is a Category 3 wetland.  Go to Question 11	<input checked="" type="radio"/> NO Go to Question 11
11	<b>Relict Wet Prairies.</b> Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES  Wetland should be evaluated for possible Category 3 status  Complete Quantitative Rating	<input checked="" type="radio"/> NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

<b>Site:</b> A000B wetland 1	<b>Rater(s):</b> Dustin Giesler	<b>Date:</b> 2/12/18
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2	2
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

2	4
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7.5	11.5
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
- ☒ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☐ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☒ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile             | <input type="checkbox"/> filling/grading              |
| <input type="checkbox"/> dike             | <input type="checkbox"/> road bed/RR track            |
| <input type="checkbox"/> weir             | <input type="checkbox"/> dredging                     |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other _____                  |

7	18.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☒ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- |   |   |
|---|---|
| <input type="checkbox"/> mowing               | <input type="checkbox"/> shrub/sapling removal          |
| <input type="checkbox"/> grazing              | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting         | <input type="checkbox"/> sedimentation                  |
| <input type="checkbox"/> selective cutting    | <input type="checkbox"/> dredging                       |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming                        |
| <input type="checkbox"/> toxic pollutants     | <input type="checkbox"/> nutrient enrichment            |

18.5
subtotal this page

<b>Site:</b> A000B Wetland 1	<b>Rater(s):</b> Dustin Giesler	<b>Date:</b> 2/12/18
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18.5

subtotal first page

0

18.5

max 10 pts.

subtotal

## Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5

23.5

max 20 pts.

subtotal

## Metric 6. Plant communities, interspersions, microtopography.

### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☒ Aquatic bed
- ☒ Emergent
- ☒ Shrub
- ☒ Forest
- ☒ Mudflats
- ☒ Open water
- ☐ Other

### 6b. horizontal (plan view) Interspersions.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ Absent (1)

### 6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ Vegetated hummocks/tussucks
- ☒ Coarse woody debris >15cm (6in)
- ☒ Standing dead >25cm (10in) dbh
- ☒ Amphibian breeding pools

### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

23.5

**End of Quantitative Rating. Complete Categorization Worksheets.**

# ORAM Summary Worksheet

Wetland I

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <u>NO</u>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <u>NO</u>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <u>NO</u>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <u>NO</u>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <u>NO</u>	If yes, Category 1.
	Question 6. Bogs	YES <u>NO</u>	If yes, Category 3.
	Question 7. Fens	YES <u>NO</u>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <u>NO</u>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES <u>NO</u>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <u>NO</u>	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	<u>2</u>	
	Metric 2. Buffers and surrounding land use	<u>2</u>	
	Metric 3. Hydrology	<u>7.5</u>	
	Metric 4. Habitat	<u>7</u>	
	Metric 5. Special Wetland Communities	<u>0</u>	
	Metric 6. Plant communities, interspersion, microtopography	<u>5</u>	
	TOTAL SCORE	<u>23.5</u>	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

## Wetland Categorization Worksheet

Choices	Circle one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions:  Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	<input checked="" type="radio"/> NO Is quantitative rating score <i>less</i> than the Category 2 scoring threshold ( <i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions:  Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	<input checked="" type="radio"/> NO Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to  Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	<input checked="" type="radio"/> NO Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold ( <i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range	<input type="radio"/> NO If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	<input checked="" type="radio"/> NO Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	<input checked="" type="radio"/> NO Wetland is assigned to category as determined by the ORAM.  A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

**Final Category**

Choose one	<input checked="" type="radio"/> Category 1	<input type="radio"/> Category 2	<input type="radio"/> Category 3
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**End of Ohio Rapid Assessment Method for Wetlands.**





Wetland 2

<b>Version 5.0</b>	<b>Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization</b>	
	<b>Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet</b>	Ohio EPA, Division of Surface Water Final: February 1, 2001

### Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

## Background Information

Wetland 2

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Date:	2/12/18		
Affiliation:	CEC		
Address:	5899 Montclair BLVD		
Phone Number:	513 - 985 - 0226		
e-mail address:	dgiesler@cecinc.com		
Name of Wetland:			
Vegetation Community(ies):	PEM/PSS		
HGM Class(es):	depression		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
<p style="font-size: 1.2em; text-align: center;">See CEC Wetland &amp; Waterbody delineation Report</p>			
Lat/Long or UTM Coordinate	39.382428, -84.383791		
USGS Quad Name	Trenton		
County	Butler		
Township	Liberty		
Section and Subsection	19		
Hydrologic Unit Code	HUC 12: 050000020706 Gregory Creek		
Site Visit	2/12/18		
National Wetland Inventory Map	N/A		
Ohio Wetland Inventory Map	N/A		
Soil Survey	RUB - Russell - Mississippian silt loams, bedrock substratum, 2-4% slopes		
Delineation report/map	See CEC Wetland & Waterbodies delineation report		

Name of Wetland: <u>Wetland Z</u>	
Wetland Size (acres, hectares):	<u>0.11 acre</u>
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.  <div style="text-align: center; padding: 50px;"> <p>See CEC Wetland &amp; Waterbody Delineation Report</p> </div>	
Comments, Narrative Discussion, Justification of Category Changes:  <div style="text-align: center; padding: 50px;"> <p>See CEC Wetland &amp; Waterbody Delineation Report</p> </div>	
Final score :	<div style="display: flex; justify-content: space-between;"> <span><u>37</u></span> <span>Category: <u>modified 2</u></span> </div>

## Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

**End of Scoring Boundary Determination. Begin Narrative Rating on next page.**

## Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	<b>Critical Habitat.</b> Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 2	<b>NO</b>  Go to Question 2
2	<b>Threatened or Endangered Species.</b> Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES  Wetland is a Category 3 wetland.  Go to Question 3	<b>NO</b>  Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES  Wetland is a Category 3 wetland  Go to Question 4	<b>NO</b>  Go to Question 4
4	<b>Significant Breeding or Concentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES  Wetland is a Category 3 wetland  Go to Question 5	<b>NO</b>  Go to Question 5
5	<b>Category 1 Wetlands.</b> Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES  Wetland is a Category 1 wetland  Go to Question 6	<b>NO</b>  Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 7	<b>NO</b>  Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral pH (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 8a	<b>NO</b>  Go to Question 8a
8a	<b>"Old Growth Forest."</b> Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES  Wetland is a Category 3 wetland.  Go to Question 8b	<b>NO</b>  Go to Question 8b

8b	<b>Mature forested wetlands.</b> Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES  Wetland should be evaluated for possible Category 3 status.  Go to Question 9a	<u>NO</u>  Go to Question 9a
9a	<b>Lake Erie coastal and tributary wetlands.</b> Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES  Go to Question 9b	<u>NO</u>  Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10	NO  Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES  Go to Question 9d	NO  Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES  Wetland is a Category 3 wetland  Go to Question 10	NO  Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10.	NO  Go to Question 10
10	<b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES  Wetland is a Category 3 wetland.  Go to Question 11	<u>NO</u>  Go to Question 11
11	<b>Relict Wet Prairies.</b> Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES  Wetland should be evaluated for possible Category 3 status  Complete Quantitative Rating	<u>NO</u>  Complete Quantitative Rating



Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alatifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

<b>Site:</b> ACUBB wetland 2	<b>Rater(s):</b> Postin Giesler	<b>Date:</b> 2/12/18
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1	1
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☒ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

9	10
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

12	22
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☒ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☒ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☐ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☒ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)
- ☒ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

9	31
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☒ None or none apparent (4)
- ☐ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☒ None or none apparent (9)
- ☐ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

31
subtotal this page

<b>Site:</b> ACOBB Welland	<b>Rater(s):</b> Dustin Giesler	<b>Date:</b> 2/12/18
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31

subtotal first page

0

31

max 10 pts.
subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

6

37

max 20 pts.
subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☒ Aquatic bed
- ☒ Emergent
- ☒ Shrub
- ☒ Forest
- ☒ Mudflats
- ☒ Open water
- ☒ Other

6b. horizontal (plan view) Interspersions.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☒ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ Vegetated hummocks/tussucks
- ☒ Coarse woody debris >15cm (6in)
- ☒ Standing dead >25cm (10in) dbh
- ☒ Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

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**End of Quantitative Rating. Complete Categorization Worksheets.**

# ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES NO	If yes, Category 3
Quantitative Rating	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Metric 1. Size	1	
	Metric 2. Buffers and surrounding land use	9	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	9	
Metric 5. Special Wetland Communities	0		
Metric 6. Plant communities, interspersion, microtopography	6		
	TOTAL SCORE	37	Category based on score breakpoints

Complete Wetland Categorization Worksheet.



## Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions:  Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES  Wetland is categorized as a Category 3 wetland	<input checked="" type="radio"/> NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold ( <i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions:  Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	<input checked="" type="radio"/> NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to  Narrative Rating No. 5	YES  Wetland is categorized as a Category 1 wetland	<input checked="" type="radio"/> NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold ( <i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	<input checked="" type="radio"/> YES  Wetland is assigned to the appropriate category based on the scoring range	<input type="radio"/> NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES  Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	<input checked="" type="radio"/> NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES  Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	<input checked="" type="radio"/> NO  Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

**Final Category**  
 Choose one      Category 1      Category 2      Category 3

**End of Ohio Rapid Assessment Method for Wetlands.**

March 15, 2018

**BY FED-EX**

Ms. Lee Robinette, Chief, Energy Resource Branch  
U.S. Army Corps of Engineers, Huntington District  
502 Eight Street  
Huntington, West Virginia 25701

**Subject:** Duke Energy, Ohio, Inc.  
Jurisdictional Determination Request  
Line A000B Pipeline Replacement Project

Dear Ms. Robinette:

Duke Energy, Ohio, Inc. (Duke Enregy), herein transmits one (1) copy of a Jurisdictional Determination (JD) request for the Line A000B Pipeline Replacement Project.

The components of this JD package are attached and include:

- Request for Jurisdictional Determination (JD) Form (Appendix 1 and Appendix 2) and Aquatic Resource Table (Attachment A)
- Wetland and Waterbody Delineation Report (Attachment B)

Please review the enclosed materials for completeness and forward your response at the earliest possible convenience to the attention of:

Steve Lane  
Duke Energy, Ohio, Inc.  
139 East Fourth Street  
Cincinnati, Ohio 45202  
[steve.lane@duke-energy.com](mailto:steve.lane@duke-energy.com)

If you need additional information, please contact Steve Lane at (513) 287-2379.

Respectfully,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Jon Frodge  
Project Manager

Dustin Giesler  
Staff Scientist

---

**ATTACHMENT A**

**JURISDICTIONAL DETERMINATION FORMS**

---



## **Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)**

To: U.S. Army Corps of Engineers - Buffalo District , Mark Scalabrino, Regulatory Branch, 1776  
Niagara Street, Buffalo, New York 14207-

- I am requesting a JD on property located at: \_\_\_\_\_  
(Street Address)  
City/Township/Parish: \_\_\_\_\_ County: \_\_\_\_\_ State: \_\_\_\_\_  
Acreage of Parcel/Review Area for JD: \_\_\_\_\_  
Section: \_\_\_\_\_ Township: \_\_\_\_\_ Range: \_\_\_\_\_  
Latitude (decimal degrees): \_\_\_\_\_ Longitude (decimal degrees): \_\_\_\_\_  
(For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- ☐ I currently own this property. ☐ I plan to purchase this property.  
☐ I am an agent/consultant acting on behalf of the requestor.  
☐ Other (please explain): \_\_\_\_\_.
- Reason for request: (check as many as applicable)  
☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.  
☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.  
☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.  
☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.  
☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.  
☐ A Corps JD is required in order to obtain my local/state authorization.  
☐ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.  
☐ I believe that the site may be comprised entirely of dry land.  
☐ Other: \_\_\_\_\_
- Type of determination being requested:  
☐ I am requesting an approved JD.  
☐ I am requesting a preliminary JD.  
☐ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.  
☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

\*Signature: \_\_\_\_\_ Date: \_\_\_\_\_

- Typed or printed name: \_\_\_\_\_  
Company name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Daytime phone no.: \_\_\_\_\_  
Email address: \_\_\_\_\_

**\*Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.

**Principal Purpose:** The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

**Routine Uses:** This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.

**Disclosure:** Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Waters_Name	Cowardin_Code	HGM_Code	Measurement_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
Wetland 1	PEM	RIVERINE	Area		0.02 ACRE	RPWWD	39.37747	-84.38346	Gregory Creek
Wetland 2	PSS	SLOPE	Area		0.01 ACRE	RPWWD	39.382492	-84.383923	Hunts Creek
Wetland 2	PEM	SLOPE	Area		0.1 ACRE	RPWWD	39.382391	-84.383505	Hunts Creek

## BACKGROUND INFORMATION

**B. NAME AND ADDRESS OF PERSON REQUESTING PJD:**

#### D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

State: County/parish/borough: City:

Lat.: Long.:

Name of nearest waterbody:

☐ Office (Desk) Determination. Date:☐ Field Determination. Date(s):[illegible]



- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "*may be*" waters of the U.S. and/or that there "*may be*" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

**SUPPORTING DATA. Data reviewed for PJD (check all that apply)**

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- ☐ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:  
Map: \_\_\_\_\_.
- ☐ Data sheets prepared/submitted by or on behalf of the PJD requestor.  
☐ Office concurs with data sheets/delineation report.  
☐ Office does not concur with data sheets/delineation report. Rationale: \_\_\_\_\_.
- ☐ Data sheets prepared by the Corps: \_\_\_\_\_.
- ☐ Corps navigable waters' study: \_\_\_\_\_.
- ☐ U.S. Geological Survey Hydrologic Atlas: \_\_\_\_\_.  
☐ USGS NHD data.  
☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite scale & quad name: \_\_\_\_\_.
- ☐ Natural Resources Conservation Service Soil Survey. Citation: \_\_\_\_\_.
- ☐ National wetlands inventory map(s). Cite name: \_\_\_\_\_.
- ☐ State/local wetland inventory map(s): \_\_\_\_\_.
- ☐ FEMA/FIRM maps: \_\_\_\_\_.
- ☐ 100-year Floodplain Elevation is: \_\_\_\_\_.(National Geodetic Vertical Datum of 1929)
- ☐ Photographs: ☐ Aerial (Name & Date): \_\_\_\_\_.  
or ☐ Other (Name & Date): \_\_\_\_\_.
- ☐ Previous determination(s). File no. and date of response letter: \_\_\_\_\_.
- ☐ Other information (please specify): \_\_\_\_\_.

**IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.**

\_\_\_\_\_  
Signature and date of  
Regulatory staff member  
completing PJD

\_\_\_\_\_  
Signature and date of  
person requesting PJD  
(REQUIRED, unless obtaining  
the signature is impracticable)<sup>1</sup>

<sup>1</sup> Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.



## NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Ohio State Plane South zone 5001 (FIPZONE 3402). The **horizontal datum** was NAD83. Differences in datum, spheroid, projection or state plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services  
NOAA/NNGS12  
National Geodetic Survey  
SSMC-3, #9202  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282  
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov/>.

**Base Map** information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by Butler County Auditor's Office, City of Oxford, Warren County GIS Department and United States Geological Survey. Additional information was photogrammetrically compiled at a scale of 1:12000 from aerial photography dated 2005.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

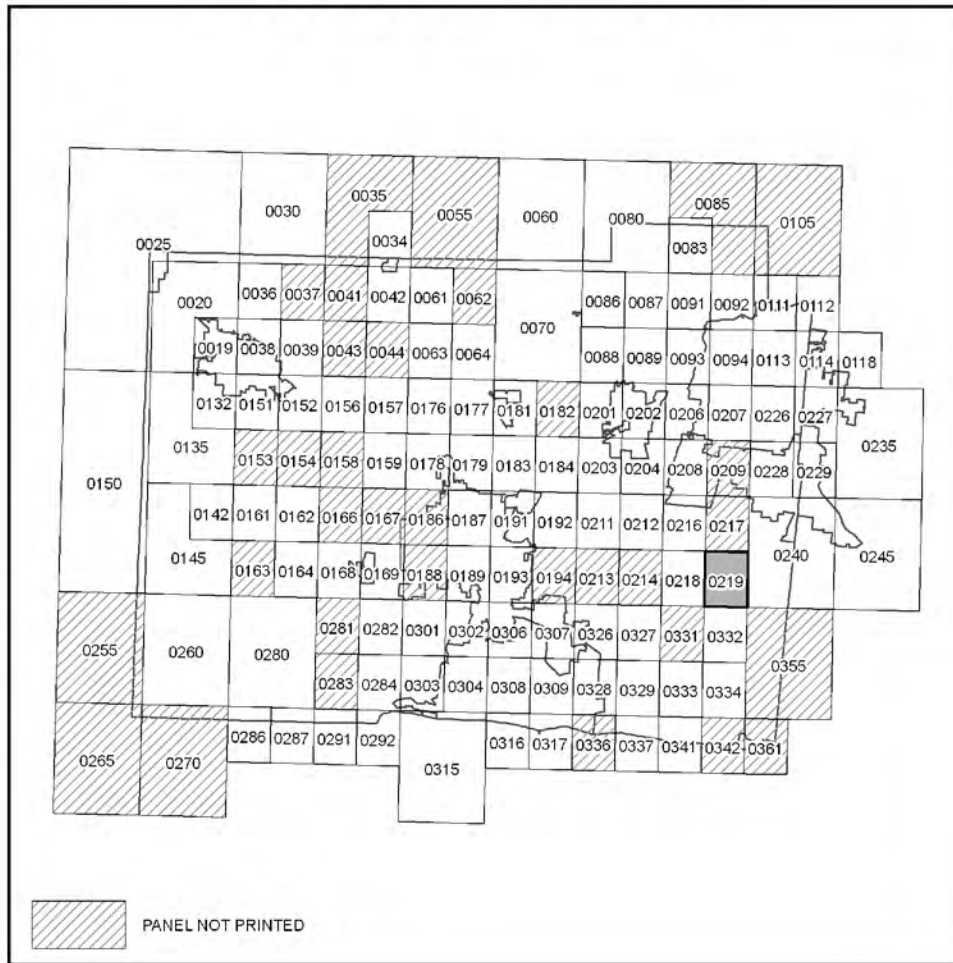
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center** (MSC) website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eChange (FMIX) at 1-877-FEMA-MAP (1-877-335-2627) or visit the FEMA website at <http://www.fema.gov/business/nfp>.

The **Profile Baseline** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **Profile Baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

## PANEL INDEX



## LEGEND

**SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

The 1% annual chance flood (100 year flood), also known as the base flood, is the flood that has a 1% chance of being equalled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard may include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

**ZONE A** No Base Flood Elevations determined.  
**ZONE AE** Base Flood Elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

**ZONE AR** Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

**ZONE A99** Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.

**ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**

**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

**OTHER AREAS**

**ZONE X** Areas determined to be outside of the 0.2% annual chance floodplain.

**ZONE D** Areas in which flood hazards are undetermined, but possible.

**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

**OTHERWISE PROTECTED AREAS (OPAs)**

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and value; elevation in feet\*

Base Flood Elevation value where uniform within zone; elevation in feet\*

\*Referenced to the North American Vertical Datum of 1988

Cross section line

Transect line

Bridge

Culvert

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

1000-meter Universal Transverse Mercator grid values, zone 16

5000-foot grid ticks: Ohio State Plane South Coordinate System, 5001 zone (FIPZONE 3402) Lambert Conformal Conic projection

Bench mark (see explanation in Notes to Users section of this FIRM panel)

River Mile

MAP REPOSITORY

Refer to listing of Map Repositories on Map Index

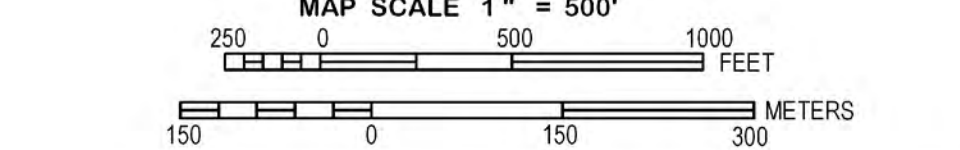
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

December 17, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 0219E**

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**BUTLER COUNTY,**  
**OHIO**  
**AND INCORPORATED AREAS**

**PANEL 219 OF 361**  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BUTLER COUNTY	390037	0219	E

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
**39017C0219E**  
**EFFECTIVE DATE**  
**DECEMBER 17, 2010**  
**Federal Emergency Management Agency**



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**ATTACHMENT B**

**WETLAND AND WATERBODY DELINEATION REPORT**

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March 15, 2018

Mr. Steve Lane, CPESC, AICP, PMP  
Senior Environmental Scientist/Planner  
Duke Energy Ohio, Inc.  
139 East Fourth Street, Room EM740  
Cincinnati, OH 45202

Dear Steve:

Subject: Wetland and Waterbody Delineation Report  
Line A000b Natural Gas Pipeline Replacement Project  
Liberty Township, Butler County, Ohio  
CEC Project 164-513

Civil & Environmental Consultants, Inc. (CEC) is pleased to present the attached wetland and waterbody delineation report for the Duke Energy Ohio, Inc. (Duke Energy) Line A000b Natural Gas Pipeline Replacement Project (Project), located in Liberty Township, Butler County, Ohio. CEC's services were provided in accordance with the Master Consulting Services Agreement, effective June 1, 2015, between Duke Energy and CEC, and our proposal dated November 22, 2016. We appreciate the opportunity to be of service to Duke Energy on this project. Please call us if you have any questions regarding the attached report.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Dustin Giesler  
Staff Scientist

Jon Frodge  
Project Manager

Attachment – Wetland and Waterbody Delineation Report

\\\\svr-cinci\projects\2016\164-513\Draft Documents\WWD\164513\_LineA000b\_WWD Report.docx

# **WETLAND AND WATERBODY DELINEATION REPORT**

## **LINE A000B NATURAL GAS PIPELINE REPLACEMENT PROJECT LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO**

**PREPARED FOR:  
DUKE ENERGY OHIO, INC.  
139 EAST FOURTH STREET  
CINCINNATI, OHIO 45202**

**PREPARED BY:  
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.  
CINCINNATI, OHIO**

**CEC Project 164-513**

**March, 2018**



**Civil & Environmental Consultants, Inc.**



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## **1.0 INTRODUCTION**

### **1.1 GENERAL INFORMATION**

This report presents the findings of a wetland and waterbody delineation conducted by Civil & Environmental Consultants, Inc. (CEC) for the Duke Energy Ohio, Inc. (Duke Energy) within the Line A000b Natural Gas Pipeline Replacement Project, located in Liberty Township, Butler County, Ohio (the Project). CEC understands that Duke is proposing to conduct a natural gas pipeline replacement. The Project will be accessed from a Duke owned facility on Yankee Road. The 8.76-acre Project survey boundary is bound by a maintained lawns to the east, Yankee Road and maintained lawns to the west, first growth/second growth forest to the north and slightly to the west, and a 1.71-acre level parking lot to the south. The Project survey boundary is located within and adjacent to existing, maintained Duke Energy natural gas pipeline right-of-way (ROW). The location of the Project survey boundary with respect to principal roads and surface features is indicated on Figure 1.

CEC conducted the field reconnaissance portion of the jurisdictional waters delineation on February 12, 2018.

### **1.2 METHODOLOGY**

This report identifies delineated wetlands, streams (ephemeral, intermittent, and perennial), and other potentially regulated waters within the Project survey boundary. The methodology for conducting the wetland and waterbody delineation is presented below.

#### **1.2.1 Wetlands**

The wetland delineation was conducted using the routine on-site determination method described in the United States Army Corps of Engineers (USACE) 1987 Corps Manual (USACE Manual)



and the USACE (2010) *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Version 2.0* (Midwest Regional Supplement). The wetland boundaries, where present, were delineated using the routine onsite determination method described in the USACE Manual and Midwest Regional Supplement, supplemented by the *National Wetland Plant List: 2016 Wetland Ratings* (Lichvar 2016) and the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2016). CEC conducted the following scope of services to identify and delineate wetland boundaries within the Project survey boundary:

1. Office Data Review: Prior to the site reconnaissance, a review was conducted of publicly available data resources, associated with topography and historically mapped soils and wetlands, in the vicinity of the Project survey boundary, in order to identify potential wetland areas. General site topography was assessed using the U.S. Geological Survey (USGS) topographic quadrangle map of Trenton, Glendale, Mason, and Monroe, Ohio (Figure 1). Soils information for Butler County, Ohio is available online from the Web Soil Survey through the USDA NRCS. Soils information in the vicinity of the Project survey boundary is displayed on Figure 2.

National Wetlands Inventory (NWI) maps, prepared by the United States Fish and Wildlife Service, are based on high altitude infrared aerial photography and limited ground truthing. NWI designated areas depict wetlands and deep water habitats and are classified according to the system developed by Cowardin et al. (1979). Accordingly, NWI data reflect conditions during the specific year and season in which the aerial photography was acquired and all wetlands may not be indicated. Similarly, the Ohio Wetlands Inventory (OWI) is based on analysis of satellite data and is intended solely as an indicator of wetland sites for which field review should be conducted. The OWI was developed in cooperation with the Ohio Department of Natural Resources (ODNR), Division of Wildlife and the USDA NRCS to provide a statewide inventory of wetlands. The OWI is useful in general planning and environmental analyses. The wetland areas shown do not necessarily meet the definition of a regulatory wetland. Mapped NWI and OWI wetlands in the vicinity of the Project survey boundary are shown on Figure 3.

2. Site Reconnaissance: The site reconnaissance portion of the wetland and waterbody delineation was performed on February 12, 2018. First, plant communities present within the Project survey boundary were identified. The dominant plant species within each community were identified and a determination was made on whether the plant community was dominated by hydrophytic (wetland) plants. If areas that appeared to be dominated by hydrophytic plants were identified within the Project survey boundary, a representative test site was located within the plant community and soils were sampled using a spade shovel to determine if hydric soil indicators were present. Lastly, the test site was inspected to determine if indicators of wetland hydrology (ponding, soil saturation, etc.) were present. If a test site was determined to be within a wetland, further testing was to be performed to locate the wetland/non-wetland boundary and a second test site was to be established

outside the wetland boundary to document conditions in the non-wetland area. If found, the boundaries of areas having the three necessary criteria were to be marked in the field with vinyl flagging and subsequently located using a sub-meter accuracy Trimble Geo-XT Global Positioning System (GPS) unit.

3. Data Collection: CEC photographed the test site location and vegetation communities located within the Project survey boundary. Representative photographs of these locations are included in Appendix A. Regional Supplement wetland determination data forms for the onsite determination method were prepared for potential wetland areas that were observed within the Project survey boundary. The wetland determination data forms provide a record of the vegetation, soils, and hydrology observations used in making the wetland determinations. The completed wetland determination data forms are provided in Appendix B.
4. Functional Assessment of Wetland Areas: CEC conducted a functional assessment on the delineated wetlands that were identified within the Project survey boundary using the Ohio Rapid Assessment Method (ORAM version 5.0) for wetlands (Mack 2001). The ORAM characterizes wetlands into one of three categories (Category 1, 2, or 3) based upon their functions, value, and overall quality. Category 1 wetlands typically have minimal functions and low quality, are often dominated by invasive species, and are often hydrologically isolated. Category 2 wetlands typically have moderate or intermediate functions and quality. Category 3 wetlands typically have superior functions and quality and may include wetlands which provide habitat for threatened and endangered species or contain unique habitats. Although the ORAM only lists three categories of wetlands, some wetlands fall into “gray zones” that exist between the categories. These wetlands must be further assessed by using either another technique or professional judgment. A preliminary wetland score was determined based on interpretation of ORAM results in accordance with narrative criteria in OAC 3745-1-54(C) and guidance in the Ohio EPA’s *ORAM v. 5.0 Quantitative Score Calibration* (Mack, 2000). The preliminary ORAM forms are provided in Appendix C.

### 1.2.2 Streams

In addition to the identification of wetlands, CEC identified streams within the Project survey boundary that would likely be considered jurisdictional by the USACE and/or the Ohio Environmental Protection Agency (Ohio EPA). Using professional judgment and field indicators such as flow, substrate composition, embeddedness, defined bed and bank, vegetation, and benthic macroinvertebrates, CEC classified on-site stream segments into one of three stream types: ephemeral, intermittent, and perennial. The following descriptions are provided to clarify the different stream classifications.

- Ephemeral Stream – An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for this stream flow regime.
- Intermittent Stream – An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. Typically these streams flow regularly during the spring and fall when ground water tables are elevated. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for this stream flow regime.
- Perennial Stream – A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for this stream flow regime.

The uppermost limit of an ephemeral stream is determined at the point where the stream loses its defined "bed and bank" or ordinary high water mark (OHWM) and a predominance of upland vegetation occurs in the channel. Under natural, undisturbed conditions, streams generally originate as headwater ephemeral drainages along the tops of ridges, transition into intermittent stream systems, and eventually transition into perennial stream systems.

The interpreted limits of each stream segment within the Project survey boundary were recorded in the field using a Trimble GeoXT GPS unit. CEC also conducted a habitat evaluation of the on-site streams using the Ohio EPA Headwater Habitat Evaluation Index ([HHEI] Ohio EPA 2012) and/or Qualitative Habitat Evaluation Index ([QHEI] Ohio EPA 2006), depending upon the watershed size and/or predominant natural pool depths. For on-site primary headwater habitat (PHWH) streams (those with drainage areas equal to or less than one square mile or predominant natural pools that are equal to or less than 15.75 inches in depth), the HHEI classifies the streams into one of three categories: ephemeral (PHWH Class I), intermittent (PHWH Class II/III), or perennial (PHWH Class II/III). The stream receives a "Modified" designation from the HHEI assessment if the stream is recovering from historic stream channel modification or exhibits recent or no recovery from past modification.

For larger streams that exceed the maximum pool depths or drainage area criteria set forth by the HHEI methodology, the QHEI assessment classifies streams into general narrative ranges based



on the total score and also provides a general indication on the aquatic life habitat use designation. The narrative ratings and corresponding QHEI scoring ranges are provided below in Table 1.

<b>TABLE 1 GENERAL NARRATIVE RANGES ASSIGNED TO QHEI SCORES</b>		
<b>Narrative Rating</b>	<b>QHEI Scoring Range</b>	
	<b>Headwaters</b>	<b>Larger Streams</b>
Excellent	≥70	≥75
Good	55 to 69	60 to 74
Fair	43 to 54	45 to 59
Poor	30 to 42	30 to 44
Very Poor	<30	<30

Ohio Water Quality Standards (OAC 3745-1) are designed to provide a basis for protecting and restoring surface waters for a variety of uses, including protection and propagation of aquatic life. Aquatic life protection criteria consist of tiered aquatic life uses which are defined in OAC 3745-1-07. These include Warmwater Habitat (WWH), Exceptional Warmwater Habitat (EWH), Coldwater Habitat (CWH), Seasonal Salmonid Habitat (SSH) and Limited Resource Waters (LRW), which is linked with Modified Warm Water Habitats (MWH).

The WWH use designation defines the “typical” warmwater assemblage of aquatic organisms for Ohio rivers and streams. This use represents the principal restoration target for the majority of water resource management efforts in Ohio.

The EWH use designation is reserved for waters that support “unusual and exceptional” assemblages of aquatic organisms which are characterized by a high species diversity, particularly those which are intolerant and/or rare, threatened, endangered, or special status (i.e., declining species). This designation represents a protection goal for Ohio’s water resources.

The MWH designation applies to highly modified habitats that support the semblance of a warmwater biological community, but where the community falls short of attaining the WWH biological criteria because of functional and structural alterations of the macro-habitat. Examples include streams that have been channelized, straightened and/or heavily impounded and streams

that are experiencing heavy sedimentation. MWH habitats are commonly low in dissolved oxygen (DO), elevated in ammonia, and/or nutrient enriched.

The LRW use designation applies to small streams and other water courses which have been irretrievably altered to the extent that no appreciable assemblage of aquatic life can be supported. Such waterways generally include small streams in urbanized areas, those which lie in watersheds with extensive drainage modifications and those which completely lack water on a recurring basis.

### 1.2.3 Open Water Bodies

The locations of ponds, lakes, or other open water bodies, where present within the Project survey boundary, were recorded using a Trimble Geo-XT GPS unit during the site reconnaissance.

## **2.0 FINDINGS**

### **2.1 HYDROLOGY**

The Project survey boundary is situated in the Gregory Creek [Hydrologic Unit Code (HUC) 050800020705] watershed. Elevations within the Project survey boundary are mapped to range from approximately 840 feet above mean sea level, at the southern portion and the northern portion of the Project survey boundary, to 850 feet above mean sea level, in the central portion of the Project survey boundary. The northern portion of the Project survey boundary drains to Hunt's Creek and the southern half drains to an UNT to Gregory Creek. Hunt's Creek is a tributary to Gregory Creek. The total drainage area of Gregory Creek within the Project survey boundary is approximately <1 square miles. The Project survey boundary is not located within a FEMA Special Flood Hazard Area (Figure 4).

### **2.2 SOILS**

The NRCS (USDA 2016) identifies seven (7) soil types within the Project survey boundary (Table 2, Figure 2). Three (3) of the soil map units are classified by the USDA as hydric, indicating the potential for encountering wetlands within portions of the Project survey boundary covered by these units..



<b>TABLE 2</b> <b>SOILS INFORMATION</b>			
<b>Soil Map Unit Symbol</b>	<b>Soil Mapping Unit Name</b>	<b>Drainage Class</b>	<b>NRCS Hydric Soil Designation</b>
DaB	Dana silt loam, 2 to 6 percent slopes	Moderately Well Drained	Hydric Inclusions
FcA	Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	Somewhat poorly drained	Hydric Inclusions
FdB	Fincastle silt loam, bedrock substratum, 2 to 6 percent slopes	Somewhat poorly drained	Not Hydric
Pa	Patton silty clay loam, 0 to 2 percent slopes	Poorly drained	Hydric
RwB	RwB - Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes	Well drained	Not Hydric
WyB2	WyB2 - Wynn silt loam, 2 to 6 percent slopes	Well drained	Not Hydric
WyC2	WyC2 - Wynn silt loam, 6 to 12 percent slopes, moderately eroded	Well drained	Not Hydric

## 2.3 NATIONAL AND STATE WETLAND INVENTORY MAPS

### 2.3.1 NATIONAL WETLAND INVENTORY MAP

No mapped NWI wetlands were identified within the Project survey boundary at the time that this report was prepared (Figure 3).

### 2.3.2 OHIO WETLAND INVENTORY MAP

No mapped OWI wetlands were identified within the Project survey boundary at the time that this report was prepared (Figure 3).

## **2.3 NATIONAL HYDROGRAPHY DATASET STREAMS**

No mapped National Hydrography dataset (NHD) streams were mapped within the Project survey boundary at the time this report was prepared (Figure 3).

## **2.4 VEGETATION**

The vegetation found within the wetland determination test site has been detailed in the individual wetland determination data forms provided in Appendix B. Representative photographs of the vegetation types found within the wetland determination test site is included in Appendix A. Dominant plant species comprising this plant community was identified and the USFWS wetland plant indicator status was determined according to Lichvar (2016). The USFWS has defined five wetland plant indicator categories, which include:

- Obligate Wetland (OBL – has >99% probability of occurring in wetlands);
- Facultative Wetland (FACW – has 66% to 99% chance of occurring in wetlands);
- Facultative (FAC – has 33% to 66% chance of occurring in wetlands);
- Facultative Upland (FACU – has 1 to 33% chance of occurring in wetlands); and,
- Upland (UPL – has <1% chance of occurring in wetlands).

Plants classified as OBL, FACW, or FAC are considered to be wetland plants (hydrophytes) by the USFWS and USACE.

## **2.5 WETLANDS**

Data were collected from five wetland determination sample points using the on-site wetland determination method described above in Section 1.2.1. Based on the findings at these sample points, one (1) palustrine emergent (PEM) and one (1) PEM/palustrine shrub/scrub (PSS) wetlands were identified within the Project survey boundary. The approximate locations of the sample points and wetlands are shown on Figure 4 and Figures 5A to 5C. Representative photographs can be found in Appendix A. The wetland determination data forms are provided in Appendix B and

preliminary ORAM forms are presented in Appendix C. Additional details regarding the wetlands are provided below and summarized in Table 3.

**Wetland 1**, a PEM wetland, is located in the southern portion of the Project survey boundary. Wetland 1 is located in a depression within a maintained lawn and Duke owned right-of-way, and is approximately 0.02 acres within the Project survey boundary (Figure 4 and Figures 5A to 5C). Based on an ORAM score of 23.5, this wetland was classified as a low quality, Category 1 wetland (Appendix C). At the sample point of the wetland, the plant community is dominated by fringed sedge (*Carex crinita*, OBL). The hydric soil indicators were hydrogen sulfide and 2 cm of muck. Indicators of wetland hydrology included surface water, high water table, saturation, water-stained leaves, hydrogen sulfide odor, geomorphic condition and FAC-neutral test.

**Wetland 2**, a PEM/PSS wetland, is located in the northern portion of the Project. Wetland 2 is located in a depression within a wooded area near Yankee Road (Figure 4 and Figure 5A). The PEM portion of the wetland is approximately 0.10 acre and the PSS portion was approximately 0.01 acre. Based on an ORAM score of 37, this wetland was classified as a medium quality, Modified Category 2 wetland (Appendix C). At the sample point for the PEM portion of the wetland, the plant community is dominated by lesser poverty rush (*Juncus tenuis*, FAC) and common fox sedge (*Carex vulpinoidea*, FACW). The hydric soil indicator was redox dark surface. Indicators of wetland hydrology included surface water, high water table, saturation, water-stained leaves, drainage patterns, geomorphic position, and FAC neutral test. At the sample point for the PSS portion of the wetland, plant community is dominated by silky dogwood (*Cornus amomum*, FACW). The hydric soil indicator was redox dark surface. Indicators of wetland hydrology included high water table, saturation, water-stained leaves, drainage patterns geomorphic position, and FAC neutral test.



**TABLE 3  
WETLAND FEATURES SUMMARY**

<b>Wetland ID</b>	<b>Cowardin Classification<sup>1</sup></b>	<b>Coordinates (Latitude, Longitude)</b>	<b>Wetland Determination Sample Point ID</b>	<b>Photograph Numbers</b>	<b>Preliminary ORAM Score</b>	<b>Preliminary ORAM Category<sup>2</sup></b>	<b>Delineated Area<sup>3</sup> (Acres)</b>
Wetland 1	PEM	39.3774, -84.3834	SP-1	1-4	23.5	1	0.02
Wetland 2	PEM/PSS	39.3824, -84.3837	SP-3, SP-4	7-14	37	Modified 2	0.11
<b>Total Wetland Acreage within the Project survey boundary</b>							<b>0.13</b>

<sup>1</sup>As determined by the USACE's Waters Upload Sheet

<sup>2</sup>Scoring for ORAM v 5.0: Category 1 = 0 - 29.9; Category 1 or 2 Gray Zone = 30 - 34.9; Category Modified 2 = 35 - 44.9; Category 2 = 45 - 59.9; Category 2 or 3 = 60 - 64.9; Category 3 = 65 - 100. ORAM v. 5.0 Quantitative Score Calibration, Last Revised: August 15, 2000. [http://epa.ohio.gov/portals/35/401/oram50sc\\_s.pdf](http://epa.ohio.gov/portals/35/401/oram50sc_s.pdf)

<sup>3</sup>Acreage within the Project survey boundary

## 2.6 STREAMS

No streams were identified within the Project survey boundary.

## 2.7 OPEN WATER BODIES

No open water features were identified within the Project survey boundary.

## 2.8 DITCHES

CEC identified two (2) drainage ditches along the southern and western boundaries of the forested area, in the northern portion of the Project survey boundary. The approximate locations of the ditches are shown on Figure 5A.

## 3.0 CONCLUSIONS

CEC identified two potentially jurisdictional wetlands totaling approximately 0.13 acres, within the Project survey boundary. Additionally, two likely non-jurisdictional ditches, totaling approximately 458 linear feet were identified. Since the USACE has authority to determine and/or verify the geographical boundaries of waters of the U.S. this investigation was termed "preliminary" to this point. As requested, CEC will submit a copy of this report to the Huntington District of the USACE for written verification of the findings.

#### **4.0 LEVEL OF CARE**

The wetland and stream delineation services performed by CEC were conducted in a manner consistent with the criteria contained in the USACE Manual and Midwest Regional Supplement and with the level of care and skill ordinarily exercised by members of the environmental consulting profession practicing contemporaneously under similar conditions in the locality of the project. It must be recognized that the jurisdictional waters delineation was based on field observations and CEC's professional interpretation of the criteria in the USACE Manual and Midwest Regional Supplement at the time of our fieldwork. Wetland and stream determinations may change subsequent to CEC's delineation based on changes in the regulatory criteria, seasonal variations in hydrology, alterations to drainage patterns and other human activities and/or land disturbances.

## 5.0 REFERENCES

- Cowardin, L. M., V. Carter, and F. C. Golet. 1979. *Classification of Wetlands and Deep Water Habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service. Washington D. C. FWS/OBS-79/31.
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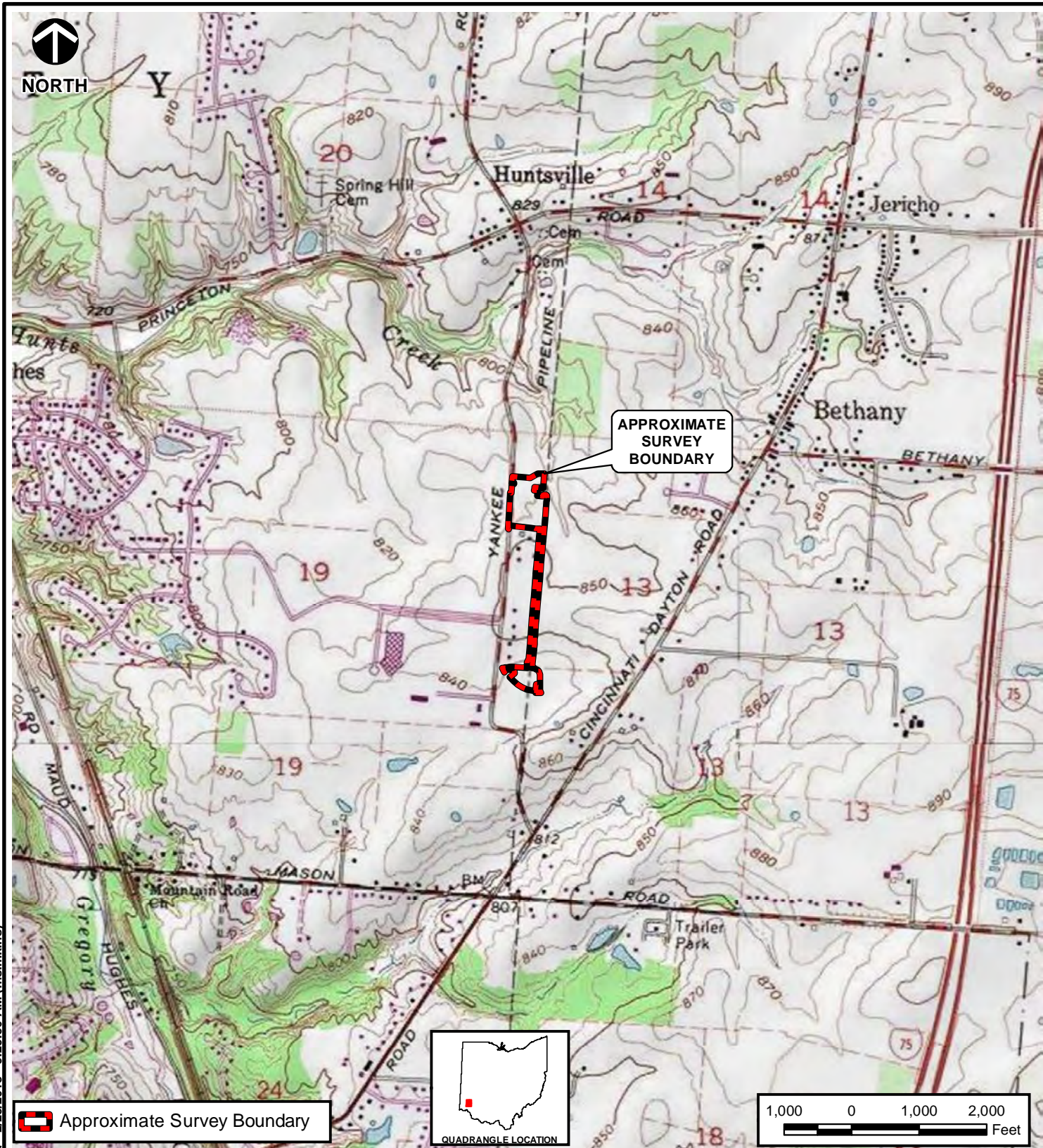


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## **FIGURES**

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SOURCE: PORTION OF THE USGS 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAPS - TRENTON, OHIO - 1983, GLENDALE, OHIO - 1982, MASON, OHIO - 1982, & MONROE, OHIO - 1975



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DUKE ENERGY  
LINE A000B PIPELINE  
REPLACEMENT PROJECT  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

### SURVEY BOUNDARY MAP

DRAWN BY:	MHS	CHECKED BY:	JB	APPROVED BY:	JMV*	FIGURE NO:
DATE:	FEBRUARY 23, 2018	DWG SCALE:	1" = 2,000'	PROJECT NO:	164-513	1

Signature on File \*



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- ◇ DaB - Dana silt loam, 2 to 6 percent slopes
- ◇ FcA - Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes
- ◇ FdB - Fincastle silt loam, bedrock substratum, 2 to 6 percent slopes
- ◇ Pa - Patton silty clay loam, 0 to 2 percent slopes
- ◇ Rwb - Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes
- ◇ WyB2 - Wynn silt loam, 2 to 6 percent slopes
- ◇ WyC2 - Wynn silt loam, 6 to 12 percent slopes, moderately eroded

**LEGEND**

- ▬ Project Survey Boundary
- ▬ USDA Soil Boundary

SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012



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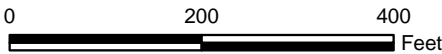
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USDA SOILS MAP

DRAWN BY:	MHS	CHECKED BY:	DMG	APPROVED BY:	JMV*	FIGURE NO:
DATE:	MARCH 09, 2018	DWG SCALE:	1" = 200'	PROJECT NO:	164-513	<b>2</b>

Signature on File \*

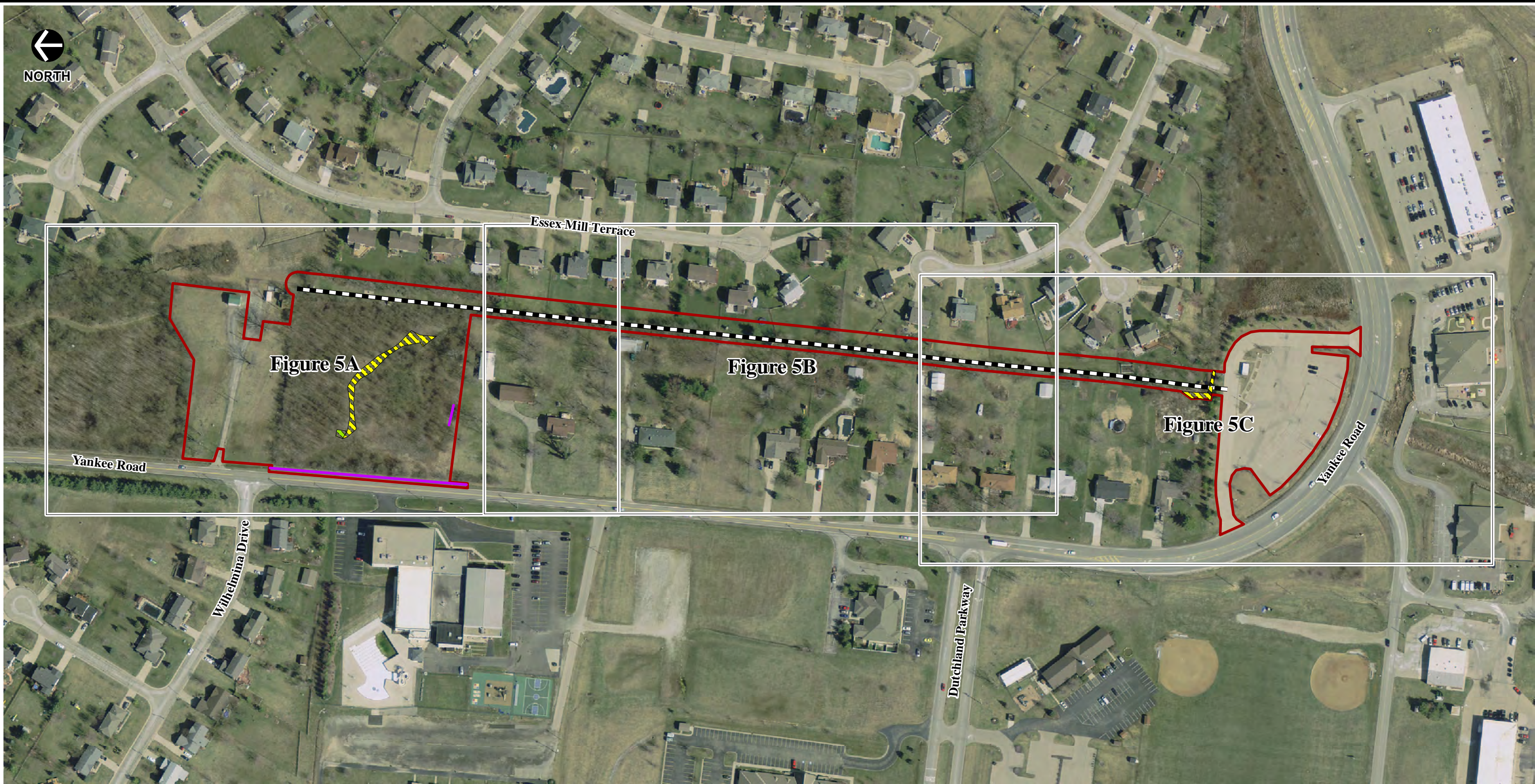






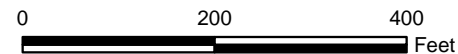


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**LEGEND**

- Project Survey Boundary
- Approximate Pipeline Replacement Location
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Shrub/Scrub Wetland (PSS)
- Drainage Ditch
- Map Index
- FEMA 100-Year Floodplain



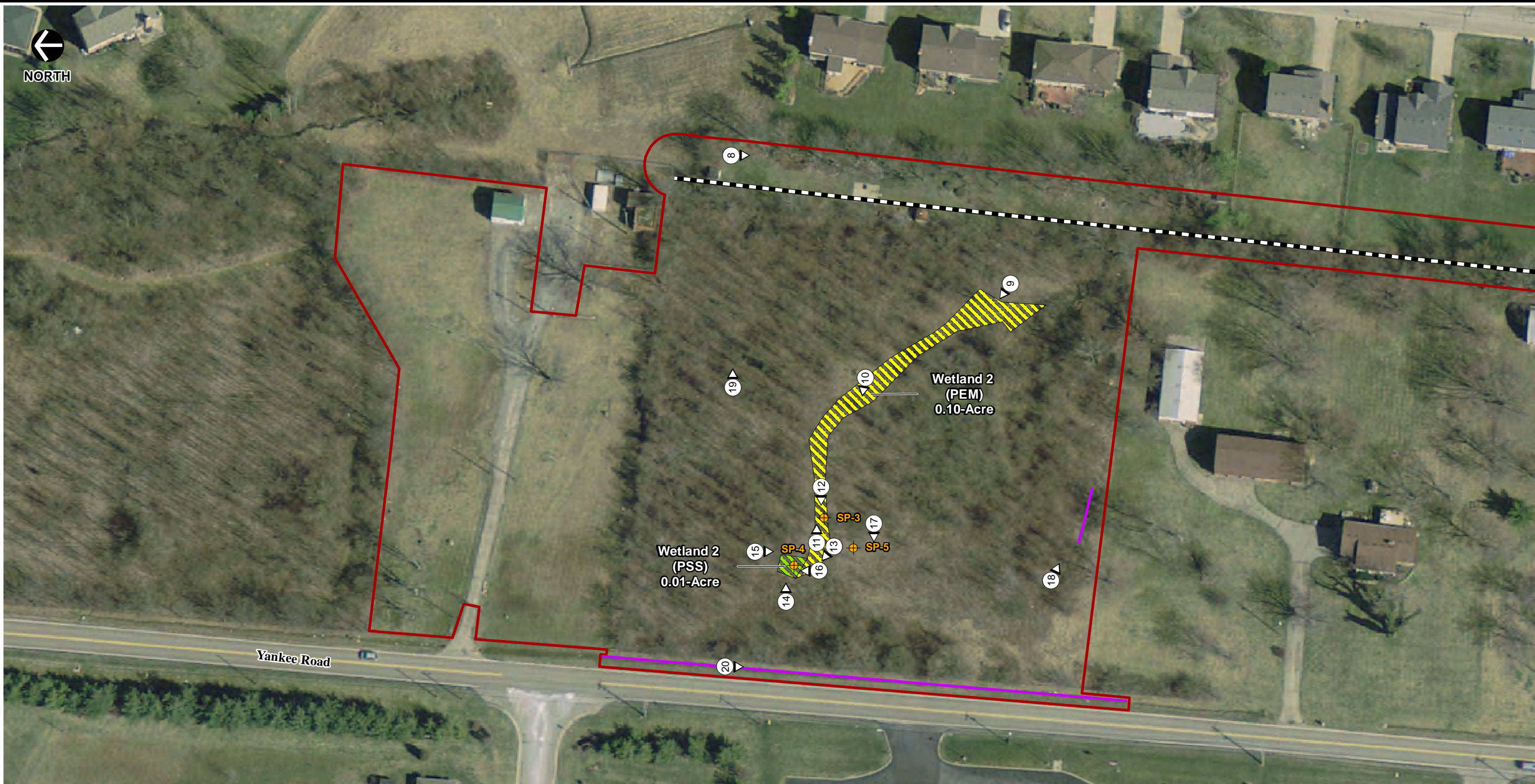
SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012

<div> <b>Civil &amp; Environmental Consultants, Inc.</b> 5899 Montclair Boulevard - Cincinnati, OH 45150 513-985-0226 - 800-759-5614 www.cecinc.com</div>	DUKE ENERGY LINE A000B PIPELINE REPLACEMENT PROJECT LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO		
	WETLAND AND WATERBODY DELINEATION INDEX MAP		
DRAWN BY: MHS	CHECKED BY: DMG	APPROVED BY: JMV*	FIGURE NO:
DATE: MARCH 09, 2018	DWG SCALE: 1" = 200'	PROJECT NO: 164-513	4

Signature on File \*



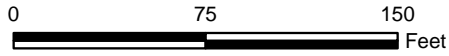
P:\2016\164-513\GIS\164513 LineA000b WWD Figure 5A-5C Delineation.mxd - 3/9/2018 - 7:06:13 PM (msimkins)



**LEGEND**

- Project Survey Boundary
- Approximate Pipeline Replacement Location
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Shrub/Scrub Wetland (PSS)
- Wetland Sample Point
- Drainage Ditch
- FEMA 100-Year Floodplain

Note: FEMA 100-Year Flood Zone is not within the extent of this map.



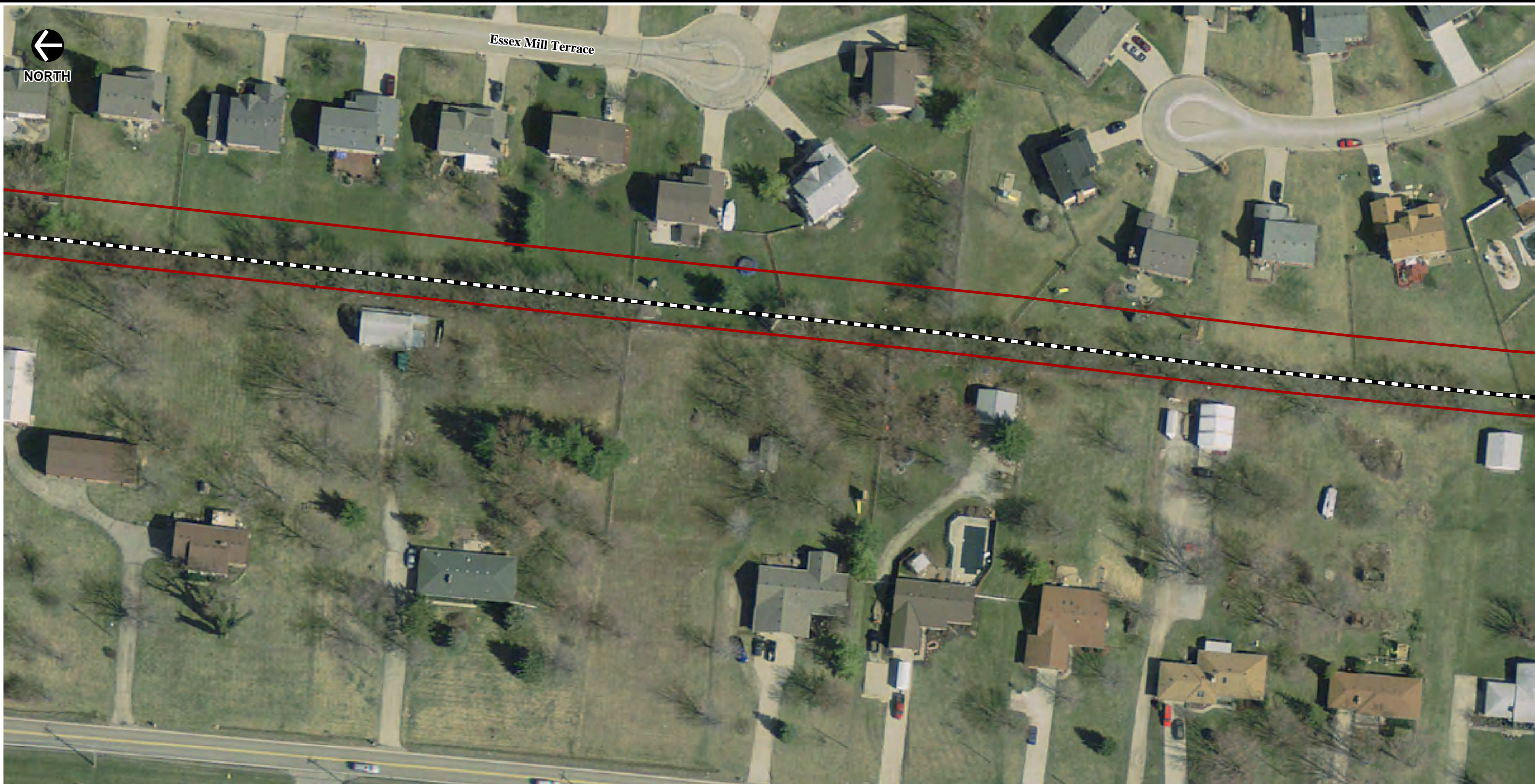
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		WETLAND AND WATERBODY DELINEATION MAP	
DRAWN BY: MHS	CHECKED BY: DMG	APPROVED BY: JMV*	FIGURE NO: 5A
DATE: MARCH 09, 2018	DWG SCALE: 1" = 75'	PROJECT NO: 164-513	

Signature on File \*



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**LEGEND**

Project Survey Boundary

Approximate Pipeline Replacement Location

Delineated Palustrine Emergent Wetland (PEM)

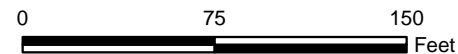
Delineated Palustrine Shrub/Scrub Wetland (PSS)

Wetland Sample Point

Drainage Ditch

FEMA 100-Year Floodplain

Note: FEMA 100-Year Flood Zone is not within the extent of this map.



SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012

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		WETLAND AND WATERBODY DELINEATION MAP	
DRAWN BY:	MHS	CHECKED BY:	DMG
DATE:	MARCH 09, 2018	DWG SCALE:	1" = 75'
APPROVED BY:		JMV*	FIGURE NO:
PROJECT NO:		164-513	<b>5B</b>

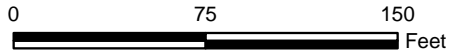
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- LEGEND**
- Project Survey Boundary
  - Approximate Pipeline Replacement Location
  - Delineated Palustrine Emergent Wetland (PEM)
  - Delineated Palustrine Shrub/Scrub Wetland (PSS)
  - Wetland Sample Point
  - Drainage Ditch
  - FEMA 100-Year Floodplain

Note: FEMA 100-Year Flood Zone is not within the extent of this map.



SOURCE: BUTLER COUNTY OHIO AERIAL IMAGE, OHIO GEOGRAPHICALLY REFERENCED IMAGERY PROGRAM / OSIP II, 2012

<div> <b>Civil &amp; Environmental Consultants, Inc.</b> 5899 Montclair Boulevard - Cincinnati, OH 45150 513-985-0226 - 800-759-5614 www.cecinc.com</div>	APPROVED BY: JMV*	FIGURE NO: 5C
DRAWN BY: MHS	CHECKED BY: DMG	PROJECT NO: 164-513
DATE: MARCH 09, 2018	DWG SCALE: 1" = 75'	

Signature on File \*



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**APPENDIX A**

**SITE PHOTOGRAPHS**

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*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 1. Representative view of Wetland 1 (PEM). Photograph taken facing to the west.



Photograph 2. Representative view of Wetland 1 (PEM). Photograph taken facing to the west.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 3. Representative view of Wetland 1 (PEM). Photograph taken facing to the east.



Photograph 4. Representative view of Wetland 1 (PEM) sample point (SP-1).



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 5. Representative view of Wetland 1 (PEM) upland sample point (SP-2).



Photograph 6. Representative view of Wetland 1 upland sample point (SP-2) vicinity. Photograph taken facing to the southeast.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 7. Representative view of maintained lawn/existing ROW habitat in southern portion of replacement pipeline area of impact. Photograph taken facing to the south.



Photograph 8. Representative view of maintained lawn/existing ROW habitat in northern portion of replacement pipeline area of impact. Photograph taken facing to the south.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 9. Representative view of eastern side of Wetland 2 (PEM portion). Photograph taken facing to the west.



Photograph 10. Representative view of middle area Wetland 2 (PEM portion). Photograph taken facing to the west.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 11. Representative view of western side of Wetland 2 (PEM portion). Photograph taken facing to the east.



Photograph 12. Representative view of Wetland 2 (PEM portion) sample point (SP-3) vicinity. Photograph taken facing to the west.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 13. Representative view of southeastern area of Wetland 2 (PSS portion). Photograph taken facing to the west.



Photograph 14. Representative view of northern area of Wetland 2 (PSS portion). Photograph taken facing to the east.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 15. Representative view of western area of Wetland 2 (PSS portion). Photograph taken facing to the south.



Photograph 16. Representative view of Wetland 2 (PSS portion) sample point (SP-4).



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 17. Representative view of upland SP-5 habitat. Photograph taken facing south.



Photograph 18. Representative view of drainage ditch in southwest corner of young second growth forest habitat. Photograph taken facing to the east.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 19. Representative view of northeastern wooded portion of the woodlot that is intended for tree clearing. Photograph taken facing to the east.



Photograph 20. Representative view of drainage ditch on the western side of young second growth forest habitat. Photograph taken facing to the south.

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**APPENDIX B**

**WETLAND DETERMINATION DATA FORMS**

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# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A000B 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-1  
 Investigator(s): Dustin Giesler, Melanie Simkins Section, Township, Range: 19, Liberty Twp, 3N  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave  
 Slope (%): 2% Lat: 39.377467 Long: -84.385463 Datum: NAD83  
 Soil Map Unit Name: Pa-Patton Silty Clay Loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <u>Wetland 1 REM</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species <u>100</u> x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b> _____ = Total Cover				
1. _____				
2. _____				
3. _____				
<b>Herb Stratum (Plot size: <u>5'</u>)</b> _____ = Total Cover				
1. <u>Carex cernua</u>	<u>100%</u>	<u>Y</u>	<u>OBL</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<b>Woody Vine Stratum (Plot size: <u>30'</u>)</b> <u>100%</u> = Total Cover				
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) <u>SP-1</u>				

## SOIL

Sampling Point: SP-1

[illegible]

## HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1"</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1"</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0-16</u>		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			



# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Line A000b 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-2  
 Investigator(s): Dustin Giesler, Melanie Simkins Section, Township, Range: 19, Liberty Twp, 3N  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none  
 Slope (%): 0 Lat: 39.377434 Long: -84.383470 Datum: NAD83  
 Soil Map Unit Name: Pa-Patton Silty Clay Loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Upland sample point</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. <u>Pinus resinosa</u>	<u>50%</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Picea pungens</u>	<u>15%</u>	<u>N</u>	<u>FAL</u>	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>180</u> x 4 = <u>720</u> UPL species <u>10</u> x 5 = <u>50</u> Column Totals: <u>205</u> (A) <u>815</u> (B) Prevalence Index = B/A = <u>3.97</u>
3. <u>Pinus strobus</u>	<u>30%</u>	<u>Y</u>	<u>FACU</u>	
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____	_____	_____	_____	
<u>95%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. <u>Lonicera maackii</u>	<u>10%</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>10%</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				Remarks: (Include photo numbers here or on a separate sheet.)
1. <u>Poa annua</u>	<u>100%</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>100%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

## SOIL

Sampling Point: SP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR 3/1	90	10YR 4/6	10	C	M	Silty clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)           |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)                   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)               |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)           |
| <input type="checkbox"/> Stratified Layers (A5)            | <input type="checkbox"/> Loamy Gleyed Matrix (F2)           |
| <input type="checkbox"/> 2 cm Muck (A10)                   | <input type="checkbox"/> Depleted Matrix (F3)               |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7)         |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)             |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)      |   |

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16)        |
| <input type="checkbox"/> Dark Surface (S7)                |
| <input type="checkbox"/> Iron-Manganese Masses (F12)      |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_
Hydric Soil Present? Yes ☒ No ☐

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

## Primary Indicators (minimum of one is required; check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Fauna (B13)                        |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> True Aquatic Plants (B14)                  |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9)                    |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   | <input type="checkbox"/> Other (Explain in Remarks)                 |

## Secondary Indicators (minimum of two required)

- |  |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6)                  |
| <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1)           |
| <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> FAC-Neutral Test (D5)                     |

## Field Observations:

 Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)
Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A000B 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-3  
 Investigator(s): Dustin Gruber, Melanie Simkins Section, Township, Range: 19, Liberty TWP, 3N  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave  
 Slope (%): 2% Lat: 39.382420 Long: -84.383779 Datum: NAD 83  
 Soil Map Unit Name: RuB - Russell - Miamiian silt loams, bedrock substratum, 2 to 6% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <u>Wetland 2 PEM</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b>				
1. <u>Cornus amomum</u>	<u>10%</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<b>Herb Stratum (Plot size: <u>5'</u>)</b>				
1. <u>Paspalum flaccidum</u>	<u>5%</u>	<u>N</u>	<u>FACU</u>	
2. <u>Juncus tenuis</u>	<u>40%</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Carex vulpina</u>	<u>30%</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Potamogeton amplifolius</u>	<u>10%</u>	<u>N</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				<b>Remarks:</b> (Include photo numbers here or on a separate sheet.)
<b>Woody Vine Stratum (Plot size: <u>30'</u>)</b>				
1. _____				
2. _____				
3. _____				

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes

No

Sampling Point: SP-3

## HYDROLOGY

Midwest Region – Version 2.0



# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A000B 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-4  
 Investigator(s): Dustin Giesler, Melanie Simkins Section, Township, Range: 19, Liberty TWP, 30  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): none  
 Slope (%): 2% Lat: 39.382488 Long: -84.383939 Datum: NAD 83  
 Soil Map Unit Name: RWB - Russell - Miamian silt loams, bedrock substratum, 2 to 6% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <u>Wetland 2 PSS</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15'</u> )				
1. <u>Cornus amomum</u>	<u>60%</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
= Total Cover				
<b>Herb Stratum</b> (Plot size: <u>5'</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Juncus tenuis</u>	<u>10%</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Amphicarpaea bracteata</u>	<u>2%</u>	<u>N</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
= Total Cover				
<b>Woody Vine Stratum</b> (Plot size: <u>30'</u> )				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

## SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	95	10YR 4/4	5	C	M	Silt	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- ☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Stratified Layers (A5)  
☐ 2 cm Muck (A10)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)  
☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☒ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Coast Prairie Redox (A16)  
☐ Dark Surface (S7)  
☐ Iron-Manganese Masses (F12)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or Crust (B4)  
☐ Iron Deposits (B5)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Sparsely Vegetated Concave Surface (B8)

- ☒ Water-Stained Leaves (B9)  
☐ Aquatic Fauna (B13)  
☐ True Aquatic Plants (B14)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres on Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Gauge or Well Data (D9)  
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Stunted or Stressed Plants (D1)  
☒ Geomorphic Position (D2)  
☒ FAC-Neutral Test (D5)

## Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 1/4"  
 Water Table Present? Yes ☒ No ☐ Depth (inches): 5"  
 Saturation Present? Yes ☒ No ☐ Depth (inches): 0"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



# WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A008 164-513 City/County: Butler County Sampling Date: 2/12/18  
 Applicant/Owner: Duke Energy, Ohio, Inc. State: OH Sampling Point: SP-5  
 Investigator(s): Dustin Giesler, Melanie Simkins Section, Township, Range: 19, Liberty TWP, 3N  
 Landform (hillslope, terrace, etc.): Woodlot Local relief (concave, convex, none): none  
 Slope (%): 0 Lat: 39.382360 Long: -84.383862 Datum: NAD 83  
 Soil Map Unit Name: RuB - Russell-Miamian silt loams, bedrock substratum, 2 to 6% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Upland</u>		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
1. <u>Pycnos calleryana</u>	<u>15%</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>25</u> x 5 = <u>125</u> Column Totals: <u>70</u> (A) <u>260</u> (B) Prevalence Index = B/A = <u>3.71</u>
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. <u>Pycnos calleryana</u>	<u>10%</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Cornus amomum</u>	<u>20%</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Lonicera japonica</u>	<u>10%</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Amphicarpaea bracteata</u>	<u>5%</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Fragaria virginiana</u>	<u>10%</u>	<u>Y</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

## SOIL

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/2	100					Silt+2	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Gleyed Matrix (S4)   |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1)   |
| <input type="checkbox"/> Stratified Layers (A5)            | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> 2 cm Muck (A10)                   | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Redox Depressions (F8)     |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)      |   |

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16)        |
| <input type="checkbox"/> Dark Surface (S7)                |
| <input type="checkbox"/> Iron-Manganese Masses (F12)      |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_
Hydric Soil Present? Yes \_\_\_\_\_ No ☒

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

## Primary Indicators (minimum of one is required; check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Fauna (B13)                        |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> True Aquatic Plants (B14)                  |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9)                    |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   | <input type="checkbox"/> Other (Explain in Remarks)                 |

## Secondary Indicators (minimum of two required)

- |  |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6)                  |
| <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1)           |
| <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> FAC-Neutral Test (D5)                     |

## Field Observations:

 Surface Water Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)
Wetland Hydrology Present? Yes \_\_\_\_\_ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



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**APPENDIX C**

**OHIO RAPID ASSESSMENT METHOD FORMS**

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<b>Version 5.0</b>	<b>Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization</b>	
	<b>Background Information</b> <b>Scoring Boundary Worksheet</b> <b>Narrative Rating</b> <b>Field Form Quantitative Rating</b> <b>ORAM Summary Worksheet</b> <b>Wetland Categorization Worksheet</b>	Ohio EPA, Division of Surface Water Final: February 1, 2001

### Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>



## Background Information

Name:	Dustin Giesler
Date:	2/12/18
Affiliation:	CEL
Address:	5899 Montclair BLVD, Milford, OH, 45150
Phone Number:	513 - 985-0226
e-mail address:	dgiesler@CELinc.com
Name of Wetland:	
Vegetation Community(ies):	PEM
HGM Class(es):	Riverine
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
<p>See CEL Wetland &amp; Waterbody Delineation Report</p>	
Lat/Long or UTM Coordinate	39.377467, -84.383463
USGS Quad Name	Trenton
County	Butler
Township	Liberty Township
Section and Subsection	19
Hydrologic Unit Code	HUC12: 050800020706 Gregory Creek
Site Visit	2/12/18
National Wetland Inventory Map	N/A
Ohio Wetland Inventory Map	N/A
Soil Survey	Pa - Patton silty clay loam
Delineation report/map	See CEL Wetland & Waterbody Delineation Report

Name of Wetland: <u>Wetland 1</u>	
Wetland Size (acres, hectares):	<u>0.02 acres</u>
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.  <div style="text-align: center; padding-top: 100px;"> <p>See CEC, Wetland &amp; Waterbody Delineation report</p> </div>	
Comments, Narrative Discussion, Justification of Category Changes:  <div style="text-align: center; padding-top: 100px;"> <p>See CEC Wetland &amp; Waterbody delineation Report</p> </div>	
Final score :	<div style="display: flex; justify-content: space-between;"> <span><u>23.5</u></span> <span>Category: <u>1</u></span> </div>



## Scoring Boundary Worksheet

**INSTRUCTIONS.** The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

**End of Scoring Boundary Determination. Begin Narrative Rating on next page.**

## Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	<b>Critical Habitat.</b> Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 2	NO Go to Question 2
2	<b>Threatened or Endangered Species.</b> Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES  Wetland is a Category 3 wetland.  Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES  Wetland is a Category 3 wetland  Go to Question 4	NO Go to Question 4
4	<b>Significant Breeding or Concentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES  Wetland is a Category 3 wetland  Go to Question 5	NO Go to Question 5
5	<b>Category 1 Wetlands.</b> Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES  Wetland is a Category 1 wetland  Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral pH (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 8a	NO Go to Question 8a
8a	<b>"Old Growth Forest."</b> Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES  Wetland is a Category 3 wetland.  Go to Question 8b	NO Go to Question 8b



8b	<b>Mature forested wetlands.</b> Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES  Wetland should be evaluated for possible Category 3 status.  Go to Question 9a	<input checked="" type="radio"/> NO Go to Question 9a
9a	<b>Lake Erie coastal and tributary wetlands.</b> Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES  Go to Question 9b	<input checked="" type="radio"/> NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10	NO  Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES  Go to Question 9d	NO  Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES  Wetland is a Category 3 wetland  Go to Question 10	NO  Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10.	NO  Go to Question 10
10	<b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES  Wetland is a Category 3 wetland.  Go to Question 11	<input checked="" type="radio"/> NO Go to Question 11
11	<b>Relict Wet Prairies.</b> Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES  Wetland should be evaluated for possible Category 3 status  Complete Quantitative Rating	<input checked="" type="radio"/> NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicaratum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

<b>Site:</b> A000B wetland 1	<b>Rater(s):</b> Dustin Giesler	<b>Date:</b> 2/12/18
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2	2
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

2	4
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ 0 NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ 2 LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7.5	11.5
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ 1 Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
- ☒ 1 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☐ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ 3 None or none apparent (12)
- ☐ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ 1 Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ 1.5 Seasonally inundated (2)
- ☒ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile             | <input type="checkbox"/> filling/grading              |
| <input type="checkbox"/> dike             | <input type="checkbox"/> road bed/RR track            |
| <input type="checkbox"/> weir             | <input type="checkbox"/> dredging                     |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other _____                  |

7	18.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ 2 Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☒ 2 Good (5)
- ☐ Moderately good (4)
- ☐ Fair (3)
- ☒ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ 3 Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- |   |   |
|---|---|
| <input type="checkbox"/> mowing               | <input type="checkbox"/> shrub/sapling removal          |
| <input type="checkbox"/> grazing              | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting         | <input type="checkbox"/> sedimentation                  |
| <input type="checkbox"/> selective cutting    | <input type="checkbox"/> dredging                       |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming                        |
| <input type="checkbox"/> toxic pollutants     | <input type="checkbox"/> nutrient enrichment            |

18.5
subtotal this page



<b>Site:</b> A000B Wetland 1	<b>Rater(s):</b> Dustin Giesler	<b>Date:</b> 2/12/18
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18.5

subtotal first page

0

18.5

max 10 pts.

subtotal

## Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5

23.5

max 20 pts.

subtotal

## Metric 6. Plant communities, interspersions, microtopography.

### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☒ Aquatic bed
- ☒ Emergent
- ☒ Shrub
- ☒ Forest
- ☒ Mudflats
- ☒ Open water
- ☐ Other

### 6b. horizontal (plan view) Interspersions.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ Absent (1)

### 6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ Vegetated hummocks/tussucks
- ☒ Coarse woody debris >15cm (6in)
- ☒ Standing dead >25cm (10in) dbh
- ☒ Amphibian breeding pools

### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

23.5

End of Quantitative Rating. Complete Categorization Worksheets.

# ORAM Summary Worksheet

Wetland I

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <u>NO</u>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <u>NO</u>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <u>NO</u>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <u>NO</u>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <u>NO</u>	If yes, Category 1.
	Question 6. Bogs	YES <u>NO</u>	If yes, Category 3.
	Question 7. Fens	YES <u>NO</u>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <u>NO</u>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES <u>NO</u>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <u>NO</u>	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	<u>2</u>	
	Metric 2. Buffers and surrounding land use	<u>2</u>	
	Metric 3. Hydrology	<u>7.5</u>	
	Metric 4. Habitat	<u>7</u>	
	Metric 5. Special Wetland Communities	<u>0</u>	
	Metric 6. Plant communities, interspersion, microtopography	<u>5</u>	
	TOTAL SCORE	<u>23.5</u>	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

## Wetland Categorization Worksheet

Choices	Circle one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions:  Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	<input checked="" type="radio"/> NO Is quantitative rating score <i>less</i> than the Category 2 scoring threshold ( <i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions:  Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	<input checked="" type="radio"/> NO Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to  Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	<input checked="" type="radio"/> NO Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold ( <i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range	<input type="radio"/> NO If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	<input checked="" type="radio"/> NO Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	<input checked="" type="radio"/> NO Wetland is assigned to category as determined by the ORAM.  A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

**Final Category**

Choose one	<input checked="" type="radio"/> Category 1	<input type="radio"/> Category 2	<input type="radio"/> Category 3
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**End of Ohio Rapid Assessment Method for Wetlands.**





Wetland 2

<b>Version 5.0</b>	<b>Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization</b>	
	<b>Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet</b>	Ohio EPA, Division of Surface Water Final: February 1, 2001

### Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

## Background Information

Wetland 2

Name:	Dustin Giesler		
Date:	2/12/18		
Affiliation:	CEC		
Address:	5899 Montclair BLVD		
Phone Number:	513 - 985 - 0226		
e-mail address:	dgiesler@cecinc.com		
Name of Wetland:			
Vegetation Community(ies):	PEM/PSS		
HGM Class(es):	depression		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
<p style="font-size: 1.2em; text-align: center;">See CEC Wetland &amp; Waterbody delineation Report</p>			
Lat/Long or UTM Coordinate	39.382428, -84.383791		
USGS Quad Name	Trenton		
County	Butler		
Township	Liberty		
Section and Subsection	19		
Hydrologic Unit Code	HUC 12: 050000020706 Gregory Creek		
Site Visit	2/12/18		
National Wetland Inventory Map	N/A		
Ohio Wetland Inventory Map	N/A		
Soil Survey	RUB - Russell - Mississippian silt loams, bedrock substratum, 2-4% slopes		
Delineation report/map	See CEC Wetland & Waterbodies delineation report		



Name of Wetland: <u>Wetland Z</u>	
Wetland Size (acres, hectares):	<u>0.11 acre</u>
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.  <div style="text-align: center; font-size: 1.2em;">           See CEC Wetland &amp; Waterbody            Delineation Report         </div>	
Comments, Narrative Discussion, Justification of Category Changes:  <div style="text-align: center; font-size: 1.2em;">           See CEC Wetland &amp; Waterbody            Delineation Report         </div>	
Final score :	<div style="display: flex; justify-content: space-between;"> <span><u>37</u></span> <span>Category: <u>modified 2</u></span> </div>

## Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

**End of Scoring Boundary Determination. Begin Narrative Rating on next page.**

## Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	<b>Critical Habitat.</b> Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 2	<u>NO</u>  Go to Question 2
2	<b>Threatened or Endangered Species.</b> Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES  Wetland is a Category 3 wetland.  Go to Question 3	<u>NO</u>  Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES  Wetland is a Category 3 wetland  Go to Question 4	<u>NO</u>  Go to Question 4
4	<b>Significant Breeding or Concentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES  Wetland is a Category 3 wetland  Go to Question 5	<u>NO</u>  Go to Question 5
5	<b>Category 1 Wetlands.</b> Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES  Wetland is a Category 1 wetland  Go to Question 6	<u>NO</u>  Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 7	<u>NO</u>  Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral pH (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 8a	<u>NO</u>  Go to Question 8a
8a	<b>"Old Growth Forest."</b> Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES  Wetland is a Category 3 wetland.  Go to Question 8b	<u>NO</u>  Go to Question 8b



8b	<b>Mature forested wetlands.</b> Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES  Wetland should be evaluated for possible Category 3 status.  Go to Question 9a	<u>NO</u>  Go to Question 9a
9a	<b>Lake Erie coastal and tributary wetlands.</b> Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES  Go to Question 9b	<u>NO</u>  Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10	NO  Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES  Go to Question 9d	NO  Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES  Wetland is a Category 3 wetland  Go to Question 10	NO  Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10.	NO  Go to Question 10
10	<b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES  Wetland is a Category 3 wetland.  Go to Question 11	<u>NO</u>  Go to Question 11
11	<b>Relict Wet Prairies.</b> Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES  Wetland should be evaluated for possible Category 3 status  Complete Quantitative Rating	<u>NO</u>  Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alatifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

<b>Site:</b> ACUBB wetland 2	<b>Rater(s):</b> Postin Giesler	<b>Date:</b> 2/12/18
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1	1
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

9	10
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

12	22
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☒ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☒ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☐ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☒ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)
- ☒ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

9	31
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☒ None or none apparent (4)
- ☐ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☒ None or none apparent (9)
- ☐ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

31
subtotal this page



<b>Site:</b> ACOBB Welland	<b>Rater(s):</b> Dustin Giesler	<b>Date:</b> 2/12/18
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31

subtotal first page

0

31

max 10 pts.
subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

6

37

max 20 pts.
subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☒ Aquatic bed
- ☒ Emergent
- ☒ Shrub
- ☒ Forest
- ☒ Mudflats
- ☒ Open water
- ☒ Other

6b. horizontal (plan view) Interspersions.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☒ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ Vegetated hummocks/tussucks
- ☒ Coarse woody debris >15cm (6in)
- ☒ Standing dead >25cm (10in) dbh
- ☒ Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

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**End of Quantitative Rating. Complete Categorization Worksheets.**

# ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES NO	If yes, Category 3
Quantitative Rating	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Metric 1. Size	1	
	Metric 2. Buffers and surrounding land use	9	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	9	
Metric 5. Special Wetland Communities	0		
Metric 6. Plant communities, interspersion, microtopography	6		
	TOTAL SCORE	37	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

## Wetland Categorization Worksheet

Choices	Circle one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions:  Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES  Wetland is categorized as a Category 3 wetland	<input checked="" type="radio"/> NO  Is quantitative rating score <i>less</i> than the Category 2 scoring threshold ( <i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions:  Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	<input checked="" type="radio"/> NO  Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to  Narrative Rating No. 5	YES  Wetland is categorized as a Category 1 wetland	<input checked="" type="radio"/> NO  Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold ( <i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	<input checked="" type="radio"/> YES  Wetland is assigned to the appropriate category based on the scoring range	<input type="radio"/> NO  If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES  Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	<input checked="" type="radio"/> NO  Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES  Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	<input checked="" type="radio"/> NO  Wetland is assigned to category as determined by the ORAM.  A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

**Final Category**  
 Choose one      Category 1      Category 2      Category 3

**End of Ohio Rapid Assessment Method for Wetlands.**



February 23, 2018

Dan Everson, Field Office Supervisor  
U.S. Fish & Wildlife Service  
Ohio Ecological Services Field Office  
4625 Morse Road  
Suite 104  
Columbus, OH 45230

Dear Mr. Everson:

Subject: Agency Coordination Letter and  
Threatened and Endangered Species Habitat Assessment  
Line A000B Pipeline Replacement Project  
Liberty Township, Butler County, Ohio  
CEC Project 164-513

On behalf of Duke Energy Ohio, Inc. (Duke Energy), Civil & Environmental Consultants, Inc. (CEC) has prepared the following letter report documenting the results of our federally listed threatened and endangered species habitat assessment within the Line A000B Pipeline Replacement Project survey boundary (hereafter referred to as the survey boundary) located in Liberty Township, Butler County, Ohio (Figure 1; 39.3808, -84.3831).

The proposed pipeline replacement is approximately 1,971 linear feet (0.37-mile) (the Project). The approximately 8.76-acre project survey boundary is bound by housing to the east, housing and forest to the west, Yankee Road to the south, and forest to the north (Figures 2 - 4). Approximately 3.87 acre (44%) of the survey boundary is located within existing maintained Duke Energy gas pipeline right-of-way (ROW) and maintained lawn. Approximately 4.89 acre (56%) is located within limited first-growth/limited second-growth forest, impervious surfaces, and wetland. Professional opinions expressed in this letter report were developed based upon observations made within the survey boundary on May 31, 2017 and February 12, 2018, as well as publicly available information.

## **1.0 BACKGROUND**

CEC was retained by Duke Energy to review publicly available information regarding federally listed species and conduct a habitat assessment within the survey boundary. Prior to conducting the site visits, CEC reviewed the U.S. Fish and Wildlife Service's (USFWS's) Information for Planning and Consultation (IPAC) Official Species List, the USFWS Ohio listed species by County, and the Ohio Department of Natural Resources (ODNR) Plant and Wildlife species list to ascertain which federally listed endangered, threatened, proposed endangered or threatened, and candidate species are known to occur, or potentially occur within the survey boundary located in Butler County (Attachment A).

## **2.0 SITE OBSERVATIONS AND RESULTS OF DOCUMENT REVIEW**

The USFWS IPaC (see Attachment A) listed the following federally listed endangered and threatened species as occurring, or potentially occurring, in the survey boundary: Indiana bat (*Myotis sodalis*, endangered), northern long-eared bat (*Myotis septentrionalis*, threatened), rayed bean mussel (*Villosa fabalis*, endangered), and running buffalo clover (*Trifolium stoloniferum*, endangered).

CEC reviewed the USFWS Ohio Ecological Services Field Office list of Federally Endangered, Threatened, Candidate Species, and Species of Concern in Ohio by County to assess which federally listed species are known to occur, or potentially occur, in Butler County (Attachment B). The USFWS listed the following federally listed endangered and threatened species as occurring, or potentially occurring, in Butler County: Indiana bat, northern long-eared bat, rayed bean mussel, running buffalo clover, and Eastern massasauga (*Sistrurus catenatus*, threatened). The bald eagle (*Haliaeetus leucocephalus*) is also listed as a species of special concern.

CEC also reviewed the ODNR state listed plant and wildlife species by county list for Butler County. The ODNR listed 40 plants and wildlife species as occurring, or potentially occurring in Butler County (Attachment C). CEC submitted a formal environmental review request to the ODNR to provide comments related to their divisional programs and statutory authority, relative to the Project. The ODNR comments are generated by an inter-disciplinary review within the agency. The comments are 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 (NEPA), the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations.

As of the date of this letter, CEC has not received a response from the ODNR. CEC anticipates the ODNR response would likely be limited to those species identified by the USFWS.

The survey boundary was evaluated on May 31, 2017 and February 12, 2018, to document existing vegetation communities and to characterize habitat types and hydrologic conditions. Each type of habitat present within the survey boundary (Figure 2) was evaluated for its potential to be suitable habitat for the Indiana bat, northern long-eared bat, ray bean mussel, running buffalo clover, and Eastern massasauga. Attachment D contains representative photographs of each habitat type found during the site visits.

The habitats present within the survey boundary consist of 1) maintained lawn/existing ROW habitat, 2) first-growth/limited second growth forest, 3) wetland, and 4) impervious surfaces.

Maintained Lawn/existing ROW habitat is located throughout the survey boundary consisting of approximately 44% of the total survey boundary. Dominant plant species included annual bluegrass (*Poa annua*), planted conifer species, as well as limited stands of Amur honeysuckle (*Lonicera maackii*), river birch (*Betula nigra*), and hackberry (*Celtis occidentalis*).

First-growth/limited second-growth forest habitat is located in eastern portions of the survey boundary, totaling approximately 35% of the total survey boundary. The overstory vegetation was dominated by Bradford pear (*Pyrus calleryana*) and hackberry (*Celtis occidentalis*). The understory generally consisted of Amur honeysuckle (*Lonicera maackii*) and silky dogwood (*Cornus amomum*), greatly limiting infiltration of sunlight to the forest floor and providing limited foraging and roosting habitat for bat species.

The wetland habitat is located in the south and west within the survey boundary, totaling approximately 1% of the total survey boundary. This area was dominated by silky dogwood, fox sedge (*Carex vulpinoidea*), poverty rush (*Juncus tenuis*), and fringed sedge (*Carex crinita*).

The impervious surfaces habitat is located south within the survey boundary, totaling 20% of the survey boundary. No vegetation was present.



### **3.0 THREATENED AND ENDANGERED SPECIES DOCUMENT REVIEW AND HABITAT ASSESSMENT**

#### **3.1 Indiana and Northern Long-Eared Bat**

The Indiana bat and northern long-eared bat are small (6-10 gram), insectivorous bats that range across the eastern United States. These species hibernate in caves and mines (called hibernacula) during cold-weather months, in highest concentrations in the karst regions of Indiana, Kentucky, and Missouri (USFWS 2007a). Populations of Indiana bats declined in the 1960's because of human disturbance to the caves and mines in which the bats hibernated (Richter et al. 1993). These declines, in combination with the limited number of hibernacula led to the Indiana bat's listing as an endangered species in 1967 (USFWS 2007a). Recovery efforts had brought the species back to a stable population by the mid-2000's only to have a fungal disease, called white-nose syndrome, push populations back into decline (Blehert et al. 2009; Frick et al. 2010; Turner et al. 2011).

While northern long-eared bats use hibernacula that are more widely distributed geographically than Indiana bats, their populations are also experiencing declines due to habitat loss and white-nose syndrome (Turner et al. 2011). Because of mass-mortality of northern long-eared bats at sites across the eastern United States, the USFWS listed the species as threatened in April 2015 (USFWS 2015).

During summer months, male Indiana and northern long-eared bats are typically solitary, roosting in trees, and sometimes caves (Carter et al. 2001). In contrast to male bats, the females of both species form small maternity colonies, usually less than 100 individuals, to raise their young (Foster and Kurta 1999; Kurta 2005). These colonies are typically centered around one or two primary maternity roosts that house the majority of individuals on a given day. Female bats may; however, use alternate roosts, with bats of the colony using over 20 alternate roosts in a summer. These alternate roosts can sometimes be as close as a few yards from a primary roost, but possibly as far as several miles away (Callahan et al. 1997; Carter 2003; Kurta 2005). These bat species typically roost underneath the bark of dead or dying trees, but will sometimes use living trees (e.g., shagbark hickory, white oak). Maternity colonies of Indiana bats have been known to use crevices in the trunk of a tree, but are not known to use hollows (i.e., cavities) within the bole of a tree. Northern long-eared bats tend to be more generalist in their selection of roosts, often using small

hollows and knots on the trunk of trees, and will roost in trees with a smaller diameter than those typically chosen by Indiana bats (pers. obs.).

Streams, floodplain forests, and impounded water bodies (ponds, wetlands, reservoirs, etc.) provide preferred foraging habitat for Indiana bats. They may forage up to five miles from roosts regularly. Indiana bats also forage within the canopy of upland forests, over old field clearings, along the edges of agricultural areas, along and within wooded fencerows, and over ponds in pastures (USFWS 2007a). While Indiana bats may forage in a wide variety of habitats, they typically stay fairly close to forested cover. Northern long-eared bats primarily forage in the understory of forested areas feeding on moths, flies, leafhoppers, caddisflies, and beetles, which they capture in flight or by gleaning from vegetation (USFWS 2015).

On February 12, 2018, CEC conducted a habitat assessment and pedestrian survey of potentially suitable Indiana and northern long-eared bat habitat within the survey boundary. CEC flagged potential roost trees within the survey boundary during the habitat assessment. One (1) potential roost tree (PRT) was identified and flagged within the survey boundary (Figure 4). The tree was identified as a hackberry (*Celtis occidentalis*).

CEC anticipates tree clearing will occur during the summer of 2018 and will be limited as the Project is within/adjacent to an existing Duke Energy ROW. Woody vegetation will be removed within two separate areas (Figure 4) of the survey area. One, approximately 0.13 acre of clearing will occur in the northern portion of the survey area. To limit the amount of tree clearing, Duke Energy will use their existing facility to access the northern end of the ROW and will minimize tree clearing to the maximum extent possible by clearing only a small, 0.13-acre corner of the adjacent woodlot. The area anticipated to be cleared provides limit roosting and foraging habitat for both the Indiana and northern long-eared bat due to the prevalent amount of Bradford pear and Amur honeysuckle.

Approximately 65 mature trees within the 2.73 acre maintained ROW will also be cleared. Habitat within this area is limited to maintained residential lawns, planted conifers and sparse amounts of hackberry, Amur honeysuckle and other deciduous trees. CEC anticipates avoidance of the single identified PRT (Figures 3 and 4). However, if it is determined that the PRT must be removed, removal will be limited to between October 1 and March 31 to avoid potential take of the Indiana and northern long-eared bat.

### 3.2 Rayed Bean Mussel

The rayed bean, a fresh water mussel, is federally listed as endangered and has the potential to occur in the Great Miami River drainage. Rayed bean mussels live in sand and cobble in high quality, small rivers and creeks. It most commonly occurs in riffles and lives buried in sand and gravel substrates where aquatic vegetation occurs. CEC did not identify any streams within the survey area; thus, no potential rayed bean mussel habitat was identified during the field surveys.

### 3.3 Running Buffalo Clover

Habitat for running buffalo clover (RBC) typically includes locations with partial or filtered sunlight and with moist, fertile soils that have been exposed to long-term moderate patterns of disturbance (CPC 2010). It is thought that large herbivores like bison and cattle provided the necessary scarification of the soil for plants to germinate. Populations of this species are often found in the ecotone between forest and tallgrass prairie habitats (CPC 2010).

Additionally, others describe the habitat of this species as including mesophytic woodlands (Isely 1998), moist, well drained disturbed woods associated with streams (Gleason and Cronquist 1991), and open woods, borders, and forest clearings. It has been reported from a variety of habitats, including mesic woodlands, savannahs, floodplains, stream banks, sandbars (especially where old trails cross or parallel intermittent streams), grazed woodlots, infrequently mowed paths (e.g. in cemeteries, parks, and lawns), old logging roads, jeep trails, skidder trails, mowed wildlife openings within mature forest, and steep ravines (USFWS 2007b). No critical habitat has been designated for this species.

Potentially suitable habitats for RBC consist of mesic habitats with partial to filtered sunlight, where there is a prolonged pattern of moderate, periodic disturbance, such as mowing, trampling, or grazing. RBC has been reported from a variety of habitats, including mesic woodlands, savannas, floodplains, mowed paths, mowed lawns and cemeteries, old logging roads, stream banks, grazed woodlots, mowed wildlife openings in mature forest, sandbars, and steep ravines. Areas considered to be unsuitable for RBC include sunny fields, wetlands, chemically-treated lawns, pine plantations, dry areas, and forests with a dense understory of multiflora rose (*Rosa multiflora*) and/or Amur honeysuckle (*Lonicera maackii*).



On May 31, 2017, former CEC biologist\USFWS approved running buffalo clover surveyor Joey Van Skaik evaluated the suitability of the onsite habitat for the potential presence of RBC. Mid-successional hardwood trees with cleared understory habitat receiving filtered solar exposure, mowed areas, and residential housing are present within the Project, which may qualify as potential RBC habitat. These areas within the CEC survey boundary were surveyed on May 31, 2017 revealed no individuals or populations of RBC. CEC's RBC survey report is presented as Attachment E.

### 3.4 Eastern Massasauga

Habitat for the Eastern massasauga rattlesnakes typically includes wet prairies, sedge meadows, and early successional fields, while there is a great preference for a variety of wetland habitats such as marshes, bogs, fens, moist grasslands, shrub swamps and floodplain forests. They will shift the habitats they use, depending on the season. They utilize the wetlands from the fall until the spring, but during the summer, rattlesnakes migrate to drier, upland sites, ranging from forest openings to old fields, agricultural lands and prairies. These snakes prefer to take cover under broad-leafed plants, emergents, and sedges and avoid the open water. Intensive management to retard woody vegetation growth is necessary to maintain suitable habitat conditions as the natural succession of woody vegetation is a leading cause of recent habitat deterioration throughout its range (ODNR 2016, USFWS 2017).

Suitable habitat for the Eastern massasauga was not observed during the habitat surveys for this Project. The emergent wetlands identified within the survey boundary are insufficient in size, and are not adjacent to unfragmented habitat that would serve as suitable habitat for Eastern massasauga.

### 3.5 Bald Eagle

Bald eagles are protected under the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act and have the potential to occur statewide. Bald eagles generally nest from December through mid-May in mature trees (e.g., sycamore) near fresh to intermediate marshes or open water. Nest sites typically include at least one perch with a clear view of water or area where the eagles usually forage. Bald eagles can be vulnerable to disturbance during courtship, nest building, egg laying, incubation, and brooding.

CEC is not aware of bald eagle nests within the survey boundary. However, Bald eagles have the potential to occur in areas proximal to large, open water habitats, such as the Ohio River and Great Miami River. No bald eagles or nests were observed during field reconnaissance. Therefore, it is CEC's opinion that no nests or nesting habitat for the Bald Eagle is expected to be impacted as a result of development of the property.

#### **4.0 CONCLUSIONS**

A habitat survey for Indiana bat and northern long-eared bat was conducted on February 12, 2018 by CEC ecologists. The survey identified one (1) PRT, a hackberry with a three cavities. The potential roost tree is not proposed to be removed. Furthermore, suitable foraging and roosting habitat was limited due to the prevalent amount of dense Bradford pear and Amur honeysuckle. Woody vegetation removal has been minimized to the most practicable extent for the Project and is anticipated to occur in the summer of 2018.

No streams were observed within the survey boundary, indicating no potential habitat for threatened or endangered mussels.

No potential habitat for the Eastern massasauga was identified on the October 17, 2017 habitat assessment.

The survey boundary does not provide suitable habitat for the running buffalo clover. Further, no running buffalo clover habitat was identified during a field survey conducted on May 31, 2017.

## 5.0 CLOSING

On behalf of Duke Energy, CEC respectfully requests your concurrence with the findings of this report and the above effect determinations for federally listed endangered and threatened species. If you have any questions or require additional information, please contact the undersigned at 513-985-0226.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.



Dustin M. Giesler  
Staff Scientist



Jon Frodge  
Project Manager

Attachments: Figure 1 – Site Location Map  
Figure 2 – Habitat Assessment Map  
Figure 3 – Potential Indiana/Northern Long-Eared Bat Roost Tree Survey Map  
Figure 4 – Proposed Tree Clearing Map  
Attachment A – IPaC Report  
Attachment B – USFWS Ohio Listed Species by County  
Attachment C – ODNR Listed Plants and Wildlife  
Attachment D – Site Photographs  
Attachment E – Running Buffalo Clover Survey Report



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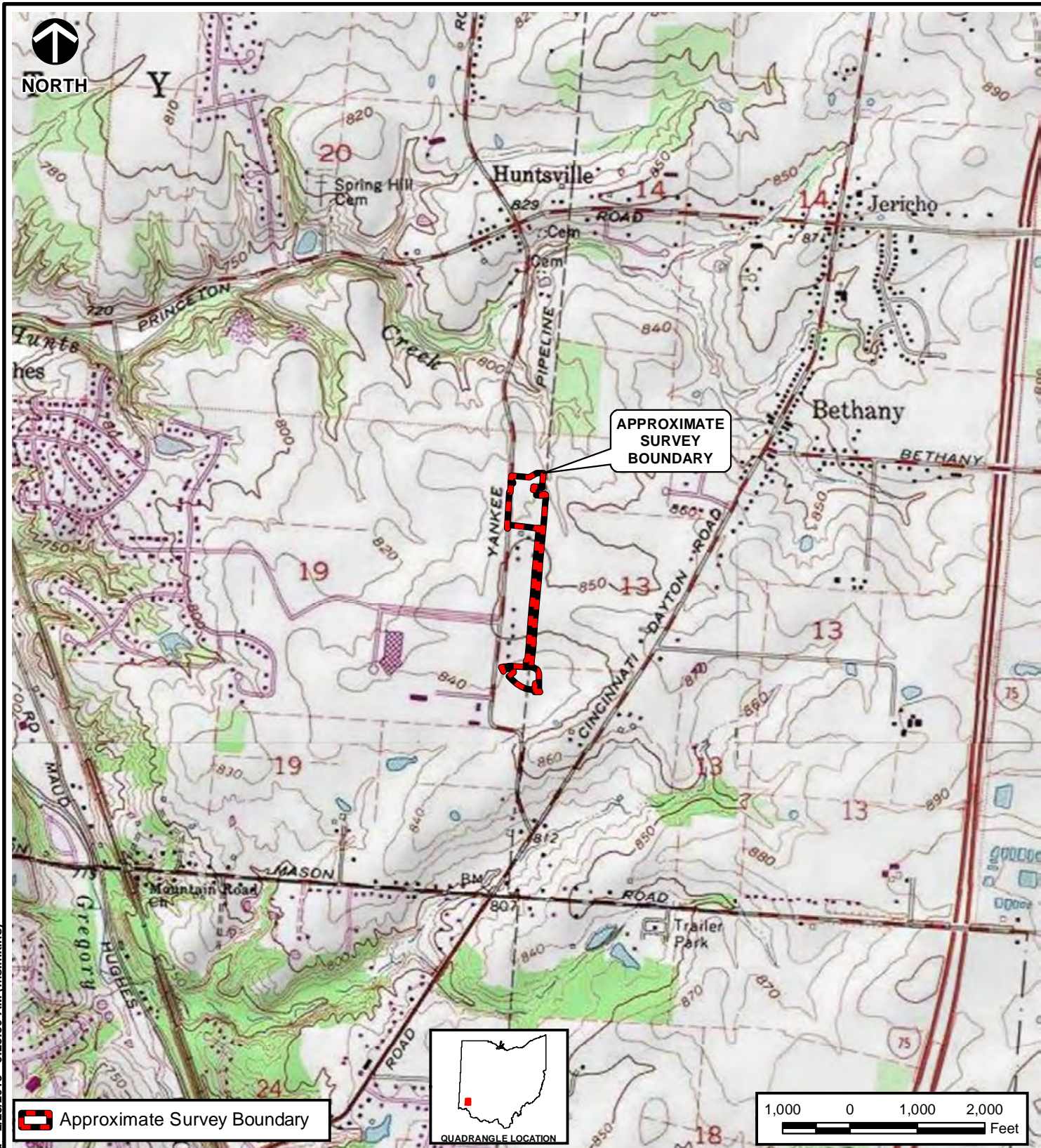
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## **FIGURES**

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SOURCE: PORTION OF THE USGS 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAPS - TRENTON, OHIO - 1983, GLENDALE, OHIO - 1982, MASON, OHIO - 1982, & MONROE, OHIO - 1975



### Civil & Environmental Consultants, Inc.

5899 Montclair Boulevard - Cincinnati, OH 45150

513-985-0226 - 800-759-5614

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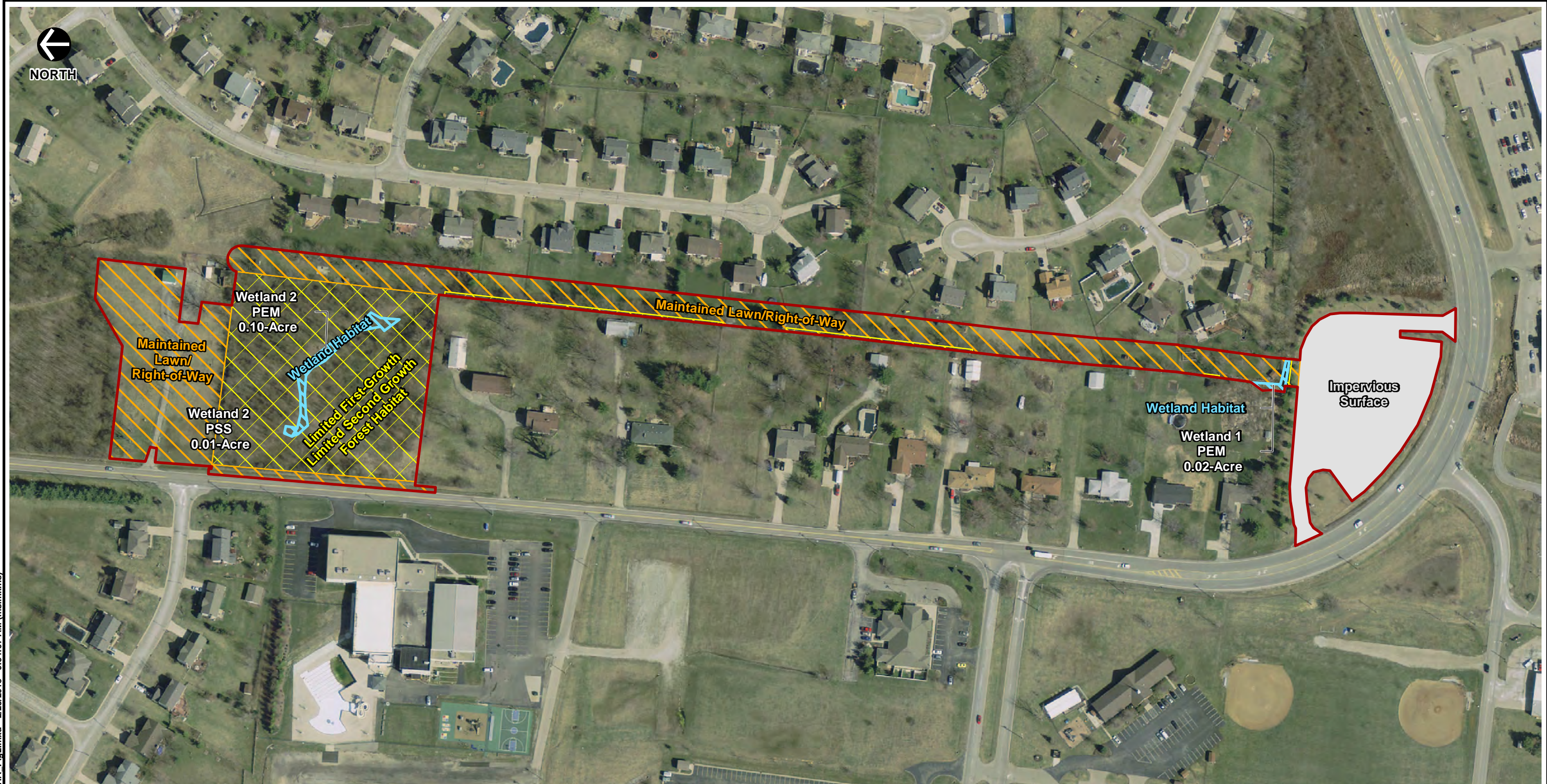
DUKE ENERGY  
LINE A000B PIPELINE  
REPLACEMENT PROJECT  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

### SURVEY BOUNDARY MAP

DRAWN BY:	MHS	CHECKED BY:	JB	APPROVED BY:	JMV*	FIGURE NO:
DATE:	FEBRUARY 23, 2018	DWG SCALE:	1" = 2,000'	PROJECT NO:	164-513	1


Signature on File \*

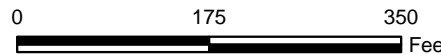




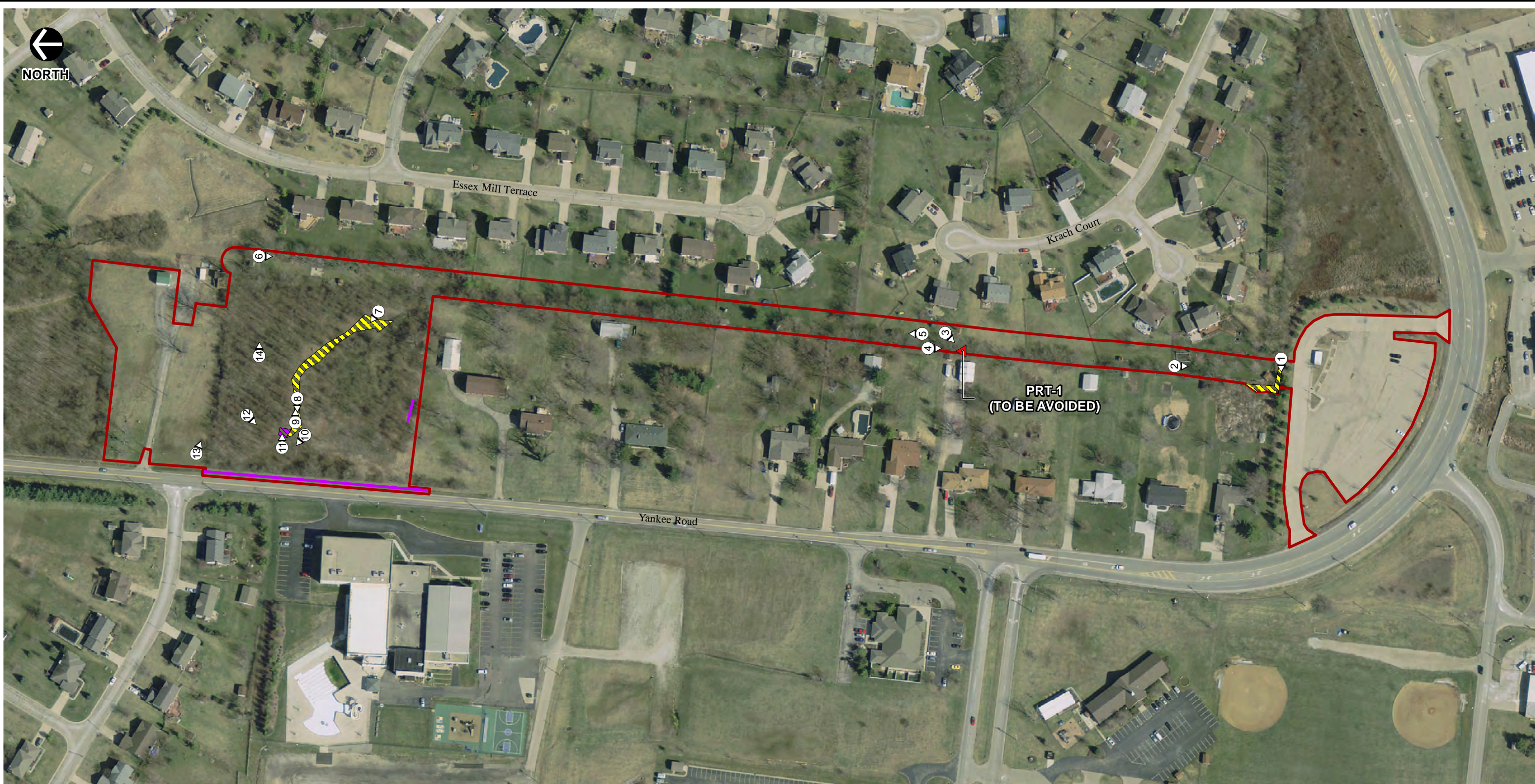
- LEGEND**
- Project Survey Boundary
  - Impervious Surface
  - Maintained Lawn/Right-of-Way
  - Limited First-Growth/Limited Second Growth
  - Wetland Habitat

SOURCE: OHIO STATEWIDE IMAGERY PROGRAM (OSIP II) 1-FOOT PIXEL RESOLUTION 2012 COLOR AERIAL PHOTOGRAPHY OF BUTLER COUNTY, OHIO. THE WETLAND DELINEATION SERVICES WERE PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON FEBRUARY 12, 2018

 <b>Civil &amp; Environmental Consultants, Inc.</b> 5899 Montclair Boulevard - Cincinnati, OH 45150 513-985-0226 - 800-759-5614 www.cecinc.com		<b>DUKE ENERGY</b> <b>LINE A000B PIPELINE</b> <b>REPLACEMENT PROJECT</b> <b>LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO</b>	
<b>HABITAT ASSESSMENT MAP</b>			
DRAWN BY: MHS	CHECKED BY: JBF	APPROVED BY: JMV*	FIGURE NO: 2
DATE: FEBRUARY 23, 2018	DWG SCALE: 1" = 175'	PROJECT NO: 164-513	








- LEGEND**
- Project Survey Boundary
  - Potential Roost Tree (PRT)
  - Palustrine Emergent Wetland (PEM)
  - Palustrine Shrub/Scrub Wetland (PSS)
  - Ditch
  - Photograph Location and Direction

SOURCE: OHIO STATEWIDE IMAGERY PROGRAM (OSIP II) 1-FOOT PIXEL RESOLUTION 2012 COLOR AERIAL PHOTOGRAPHY OF BUTLER COUNTY, OHIO.  
THE WETLAND DELINEATION SERVICES WERE PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON FEBRUARY 12, 2018

 <b>Civil &amp; Environmental Consultants, Inc.</b> 5899 Montclair Boulevard - Cincinnati, OH 45150 513-985-0226 - 800-759-5614 www.cecinc.com		DUKE ENERGY LINE A000B PIPELINE REPLACEMENT PROJECT LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO	
DRAWN BY: MHS		CHECKED BY: JBF	
DATE: FEBRUARY 23, 2018		DWG SCALE: 1" = 175'	
APPROVED BY: JMV*		FIGURE NO: 3	
PROJECT NO: 164-513			

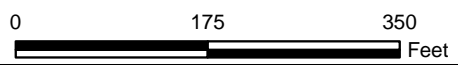


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**LEGEND**

- Project Survey Boundary
- Proposed Replacement Pipeline
- Existing Gas Pipeline
- Proposed Tree Clearing
- Maintained ROW (2.73 ac.)
- Woodlot (0.13 ac.)
- Potential Roost Tree (PRT)
- Palustrine Emergent Wetland (PEM)
- Palustrine Shrub/Scrub Wetland (PSS)
- Edge of Roadside Tree Clearing By Others



SOURCE: OHIO STATEWIDE IMAGERY PROGRAM (OSIP) 1-FOOT PIXEL RESOLUTION 2011 COLOR AERIAL PHOTOGRAPHY OF BUTLER COUNTY, OHIO. THE WETLAND DELINEATION SERVICES WERE PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON FEBRUARY 12, 2018

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**REPLACEMENT PROJECT**  
**LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO**

**PROPOSED TREE CLEARING MAP**

DRAWN BY: MHS	CHECKED BY: JBF	APPROVED BY: JMV*	FIGURE NO: 4
DATE: FEBRUARY 23, 2018	DWG SCALE: 1" = 175'	PROJECT NO: 164-513	



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## **ATTACHMENT A**

### **IPAC REPORT**

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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ohio Ecological Services Field Office

4625 Morse Road, Suite 104

Columbus, OH 43230-8355

Phone: (614) 416-8993 Fax: (614) 416-8994



In Reply Refer To:

February 15, 2018

Consultation Code: 03E15000-2018-SLI-0749

Event Code: 03E15000-2018-E-00663

Project Name: Line A000B

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.



A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <http://www.fws.gov/migratorybirds/RegulationsandPolicies.html>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/BirdHazards.html>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <http://www.fws.gov/migratorybirds/AboutUS.html>.

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We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

# Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Ohio Ecological Services Field Office**

4625 Morse Road, Suite 104

Columbus, OH 43230-8355

(614) 416-8993

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## Project Summary

Consultation Code: 03E15000-2018-SLI-0749

Event Code: 03E15000-2018-E-00663

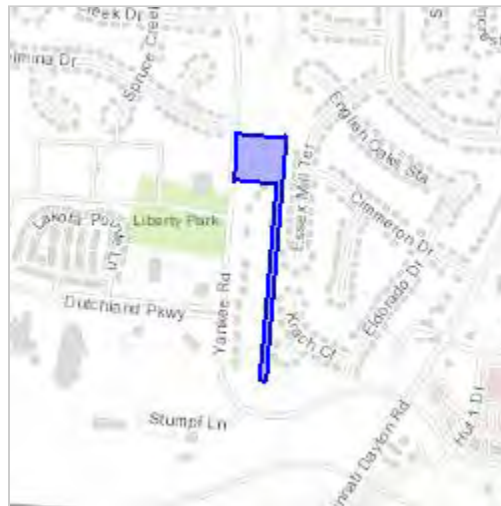
Project Name: Line A000B

Project Type: OIL OR GAS

Project Description: Duke Energy Line A000B Pipeline Replacement

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/39.380102744914346N84.38311465749356W>



Counties: Butler, OH

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## Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

### Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/5949">https://ecos.fws.gov/ecp/species/5949</a>	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> <li>Incidental take of the northern long-eared bat is not prohibited at this location. Federal action agencies may conclude consultation using the streamlined process described at <a href="https://www.fws.gov/midwest/endangered/mammals/nleb/s7.html">https://www.fws.gov/midwest/endangered/mammals/nleb/s7.html</a></li> </ul> Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

### Clams

NAME	STATUS
Rayed Bean <i>Villosa fabalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/5862">https://ecos.fws.gov/ecp/species/5862</a>	Endangered

### Flowering Plants

NAME	STATUS
Running Buffalo Clover <i>Trifolium stoloniferum</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2529">https://ecos.fws.gov/ecp/species/2529</a>	Endangered

### Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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**ATTACHMENT B**

**USFWS OHIO LISTED SPECIES BY COUNTY**

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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
4625 Morse Road, Suite 104  
Columbus, Ohio 43230  
(614) 416-8993 / FAX (614) 416-8994

### Federally Endangered, Threatened, Candidate Species, and Species of Concern in Ohio by County May 2017

COUNTY	SPECIES
ADAMS	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), fanshell (E), rayed bean (E), pink mucket pearly mussel (E), sheepsnose (E), snuffbox (E), timber rattlesnake (SC), bald eagle (SC)
ALLEN	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
ASHLAND	Indiana bat (E), northern long-eared bat (T), eastern hellbender (SC), bald eagle (SC)
ASHTABULA	Indiana bat (E), northern long-eared bat (T), Kirtland's warbler (E), piping plover (E), clubshell (E), snuffbox (E), rufa red knot (T), eastern massasauga (T), bald eagle (SC)
ATHENS	Indiana bat (E), northern long-eared bat (T), American burying beetle (E), fanshell (E), sheepsnose (E), pink mucket pearly mussel (E), snuffbox (E), running buffalo clover (E), timber rattlesnake (SC), bald eagle (SC)
AUGLAIZE	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
BELMONT	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), eastern hellbender (SC), bald eagle (SC)
BROWN	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), fanshell (E), pink mucket pearly mussel (E), rayed bean (E), sheepsnose (E), snuffbox (E), bald eagle (SC)
BUTLER	Indiana bat (E), northern long-eared bat (T), rayed bean (E), running buffalo clover (E), eastern massasauga (T), bald eagle (SC)
CARROLL	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
CHAMPAIGN	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
CLARK	Indiana bat (E), northern long-eared bat (T), rayed bean (E), eastern prairie fringed orchid (T), eastern massasauga (T), bald eagle (SC)
CLERMONT	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), fanshell (E), pink mucket pearly mussel (E), rayed bean (E), sheepsnose (E), snuffbox (E), bald eagle (SC)
CLINTON	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
COLUMBIANA	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), eastern hellbender (SC), bald eagle (SC)
COSHOCTON	Indiana bat (E), northern long-eared bat (T), clubshell (E), fanshell (E), rayed bean (E),

	purple cat's paw pearly mussel (E), sheepsnose (E), snuffbox (E), rabbitsfoot (T/CH), eastern hellbender (SC), bald eagle (SC)
CRAWFORD	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
CUYAHOGA	Indiana bat (E), northern long-eared bat (T), Kirtland's warbler (E), piping plover (E), rufa red knot (T), bald eagle (SC)
DARKE	Indiana bat (E), northern long-eared bat (T), rayed bean (E), bald eagle (SC)
DEFIANCE	Indiana bat (E), northern long-eared bat (T), clubshell (E), northern riffleshell (E), white cat's paw pearly mussel (E), rayed bean (E), copperbelly water snake (T), bald eagle (SC)
DELAWARE	Indiana bat (E), northern long-eared bat (T), rayed bean (E), snuffbox (E), rabbitsfoot (T), running buffalo clover (E), bald eagle (SC)
ERIE	Indiana bat (E), northern long-eared bat (T), Kirtland's warbler (E), piping plover (E/CH), Lakeside daisy (T), rufa red knot (T), eastern massasauga (T), Lake Erie watersnake (SC), bald eagle (SC)
FAIRFIELD	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), eastern massasauga (T), bald eagle (SC)
FAYETTE	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
FRANKLIN	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (E), snuffbox (E), rabbitsfoot (T), bald eagle (SC)
FULTON	Indiana bat (E), northern long-eared bat (T), rayed bean (E), bald eagle (SC)
GALLIA	Indiana bat (E), northern long-eared bat (T), fanshell (E), pink mucket pearly mussel (E), sheepsnose (E), snuffbox (E), running buffalo clover (E), timber rattlesnake (SC), bald eagle (SC)
GEAUGA	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
GREENE	Indiana bat (E), northern long-eared bat (T), clubshell (E), rayed bean (E), snuffbox (E), eastern massasauga (T), bald eagle (SC)
GUERNSEY	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
HAMILTON	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), fanshell (E), pink mucket pearly mussel (E), rayed bean (E), sheepsnose (E), snuffbox (E), bald eagle (SC)
HANCOCK	Indiana bat (E), northern long-eared bat (T), clubshell (E), rayed bean (E), bald eagle (SC)
HARDIN	Indiana bat (E), northern long-eared bat (T), clubshell (E), rayed bean (E), copperbelly water snake (T), eastern massasauga (T), bald eagle (SC)
HARRISON	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
HENRY	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
HIGHLAND	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), timber rattlesnake (SC), bald eagle (SC)
HOCKING	Indiana bat (E), northern long-eared bat (T), American burying beetle (E), running buffalo clover (E), northern monkshood (T), small whorled pogonia (T), timber rattlesnake (SC), bald eagle (SC)

HOLMES	Indiana bat (E), northern long-eared bat (T), eastern prairie fringed orchid (T), eastern massasauga (T), eastern hellbender (SC), bald eagle (SC)
HURON	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
JACKSON	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), timber rattlesnake (SC), bald eagle (SC)
JEFFERSON	Indiana bat (E), northern long-eared bat (T), eastern hellbender (SC), bald eagle (SC)
KNOX	Indiana bat (E), northern long-eared bat (T), eastern hellbender (SC), bald eagle (SC)
LAKE	Indiana bat (E), northern long-eared bat (T), Kirtland's warbler (E), piping plover (E/CH), snuffbox (E), rufa red knot (T), eastern massasauga (T), bald eagle (SC)
LAWRENCE	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), fanshell (E), pink mucket pearly mussel (E), sheepsnose (E), snuffbox (E), timber rattlesnake (SC), bald eagle (SC)
LICKING	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
LOGAN	Indiana bat (E), northern long-eared bat (T), rayed bean (E), eastern massasauga (T), bald eagle (SC)
LORAIN	Indiana bat (E), northern long-eared bat (T), Kirtland's warbler (E), piping plover (E), rufa red knot (T), bald eagle (SC)
LUCAS	Indiana bat (E), northern long-eared bat (T), Karner blue butterfly (E), Kirtland's warbler (E), piping plover (E), rayed bean (E), eastern prairie fringed orchid (T), rufa red knot (T), eastern massasauga (T), bald eagle (SC)
MADISON	Indiana bat (E), northern long-eared bat (T), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (E), snuffbox (E), rabbitsfoot (T/CH), bald eagle (SC)
MAHONING	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
MARION	Indiana bat (E), northern long-eared bat (T), rayed bean (E), eastern massasauga (T), bald eagle (SC)
MEDINA	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
MEIGS	Indiana bat (E), northern long-eared bat (T), fanshell (E), pink mucket pearly mussel (E), sheepsnose (E), snuffbox (E), running buffalo clover (E), bald eagle (SC)
MERCER	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
MIAMI	Indiana bat (E), northern long-eared bat (T), rayed bean (E), snuffbox (E), bald eagle (SC)
MONROE	Indiana bat (E), northern long-eared bat (T), eastern hellbender (SC), bald eagle (SC)
MONTGOMERY	Indiana bat (E), northern long-eared bat (T), rayed bean (E), snuffbox (E), eastern massasauga (T), bald eagle (SC)
MORGAN	Indiana bat (E), northern long-eared bat (T), American burying beetle (E), fanshell (E), pink mucket pearly mussel (E), sheepsnose (E), snuffbox (E), bald eagle (SC)
MORROW	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
MUSKINGUM	Indiana bat (E), northern long-eared bat (T), fanshell (E), sheepsnose (E), snuffbox (E), rabbitsfoot (T), eastern hellbender (SC), bald eagle (SC)



NOBLE	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
OTTAWA	Indiana bat (E), northern long-eared bat (T), Kirtland's warbler (E), piping plover (E), eastern prairie fringed orchid (T), Lakeside daisy (T), rufa red knot (T), eastern massasauga (T), Lake Erie watersnake (SC), bald eagle (SC)
PAULDING	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
PERRY	Indiana bat (E), northern long-eared bat (T), American burying beetle (E), eastern massasauga (T), bald eagle (SC)
PICKAWAY	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (E), snuffbox (E), rabbitsfoot (T), bald eagle (SC)
PIKE	Indiana bat (E), northern long-eared bat (T), clubshell (E), northern riffleshell (E), rayed bean (E), running buffalo clover (E), timber rattlesnake (SC), bald eagle (SC)
PORTAGE	Indiana bat (E), northern long-eared bat (T), Mitchell's satyr (E), northern monkshood (T), eastern massasauga (T), bald eagle (SC)
PREBLE	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
PUTNAM	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
RICHLAND	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), eastern hellbender (SC), bald eagle (SC)
ROSS	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), clubshell (E), northern riffleshell (E), rayed bean (E), snuffbox (E), eastern hellbender (SC), timber rattlesnake (SC), bald eagle (SC)
SANDUSKY	Indiana bat (E), northern long-eared bat (T), Kirtland's warbler (E), piping plover (E), eastern prairie fringed orchid (T), rufa red knot (T), eastern massasauga (T), bald eagle (SC)
SCIOTO	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), clubshell (E), fanshell (E), northern riffleshell (E), pink mucket pearly mussel (E), rayed bean (E), sheepnose (E), snuffbox (E), small whorled pogonia (T), Virginia spiraea (T), eastern hellbender (SC), timber rattlesnake (SC), bald eagle (SC)
SENECA	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
SHELBY	Indiana bat (E), northern long-eared bat (T), rayed bean (E), bald eagle (SC)
STARK	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
SUMMIT	Indiana bat (E), northern long-eared bat (T), northern monkshood (T), eastern massasauga (T), bald eagle (SC)
TRUMBULL	Indiana bat (E), northern long-eared bat (T), clubshell (E), eastern massasauga (T), bald eagle (SC), eastern hellbender (SC)
TUSCARAWAS	Indiana bat (E), northern long-eared bat (T), eastern hellbender (SC), bald eagle (SC)
UNION	Indiana bat (E), northern long-eared bat (T), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (E), snuffbox (E), rabbitsfoot (T/CH), bald eagle (SC)

VAN WERT	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
VINTON	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), American burying beetle (E), eastern hellbender (SC), timber rattlesnake (SC), bald eagle (SC)
WARREN	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), rayed bean (E), eastern massasauga (T), bald eagle (SC)
WASHINGTON	Indiana bat (E), northern long-eared bat (T), fanshell (E), pink mucket pearly mussel (E), sheepsnose (E), snuffbox (E), eastern hellbender (SC), timber rattlesnake (SC), bald eagle (SC)
WAYNE	Indiana bat (E), northern long-eared bat (T), eastern prairie fringed orchid (T), eastern massasauga (T), bald eagle (SC)
WILLIAMS	Indiana bat (E), northern long-eared bat (T), clubshell (E), northern riffleshell (E), rayed bean (E), white cat's paw pearly mussel (E), rabbitsfoot (T/CH), copperbelly water snake (T), bald eagle (SC)
WOOD	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
WYANDOT	Indiana bat (E), northern long-eared bat (T), rayed bean (E), eastern massasauga (T), bald eagle (SC)

**IMPORTANT NOTE:** This list reflects data available as of May 2017, and will change as new data become available. For this reason, searches for listed species should not necessarily be limited to the counties noted above. Any decisions in that regard should be made only after calling the USFWS (614/416-8993) for guidance.

E = Endangered                SC = Species of Concern  
T = Threatened              CH = Critical Habitat  
C = Candidate                P = Proposed (T/E/CH)

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**ATTACHMENT C**

**ODNR LISTED PLANTS AND WILDLIFE**

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## Butler County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
<i>Arabis pycnocarpa</i> var. <i>adpressipilis</i>	Southern Hairy Rock Cress	1965-04	P	
<i>Arabis pycnocarpa</i> var. <i>pycnocarpa</i>	Western Hairy Rock Cress	1990-05-03	X	
<i>Bromus kalmii</i>	Prairie Brome	2013-07-01	P	
<i>Carex mesochorea</i>	Midland Sedge	2005-06-05	T	
<i>Carex timida</i>	Timid Sedge	2011-06-14	T	
<i>Cyperus acuminatus</i>	Pale Umbrella-sedge	2014-09-19	P	
<i>Echinodorus berteroi</i>	Burhead	2014-09-19	P	
<i>Ribes missouriense</i>	Missouri Gooseberry	2013-07-01	T	
<i>Salix caroliniana</i>	Carolina Willow	1991-06-02	P	
<i>Silene nivea</i>	Snowy Campion	2013-07-01	E	
<i>Viburnum molle</i>	Soft-leaved Arrow-wood	2013-07-01	T	



Ohio Division of Wildlife  
Ohio Natural Heritage Database  
Date Accessed: March 6, 2015  
Based on 2014-15 Rare Plant List.

### Status:

*X* = Extirpated

*E* = Endangered

*T* = Threatened

*P* = Potentially Threatened

List Created: July 2016

## BUTLER COUNTY

State Status	Federal Status	County	Category	Species	CommonName	Sensitive Species	Most Recent Record	FWS
Endangered		Butler	Amphibian - Salamander	Eurycea lucifuga	Cave Salamander	No	2009	
Endangered		Butler	Insect - odonate	Gomphus externus	Plains Clubtail	No	1995	
Endangered	Endangered	Butler	Invert. - fw bivalve	Villosa fabalis	Rayed Bean	No		*
<b>Endangered</b>	<b>Endangered</b>	<b>Butler</b>	<b>Mammal</b>	<b>Myotis sodalis</b>	<b>Indiana Myotis</b>	<b>Yes</b>		<b>*</b>
Threatened		Butler	Invert. - decapod	Orconectes (Rhoadesius) sloanii	Sloan's Crayfish	No	2010	
Threatened		Butler	Invert. - fw bivalve	Truncilla donaciformis	Fawnsfoot	No	2010	
Threatened		Butler	Reptile - Turtle	Clemmys guttata	Spotted Turtle	Yes	1937	
Species of Concern		Butler	Amphibian - Frog / Toad	Acris crepitans crepitans	Eastern Cricket Frog	No	2012	
Species of Concern		Butler	Bird	Colinus virginianus	Northern Bobwhite	No	2011	
Species of Concern		Butler	Bird	Dolichonyx oryzivorus	Bobolink	No	2004	
Species of Concern		Butler	Fish	Esox masquinongy	Muskellunge	No	1995	
Species of Concern		Butler	Fish	Moxostoma carinatum	River Redhorse	No	2010	
Species of Concern		Butler	Fish	Moxostoma carinatum	River Redhorse	No	2010	
Species of Concern		Butler	Invert. - fw bivalve	Alasmidonta marginata	Elktoe	No	2013	
Species of Concern		Butler	Invert. - fw bivalve	Truncilla truncata	Deertoe	No	2010	
Species of Concern		Butler	Mammal	Eptesicus fuscus	Big Brown Bat	No	2010	
Species of Concern		Butler	Mammal	Lasionycteris noctivagans	Silver-haired Bat	No	2009	
Species of Concern		Butler	Mammal	Lasiurus borealis	Red Bat	No	2010	
Species of Concern		Butler	Mammal	Lasiurus cinereus	Hoary Bat	No	2009	
Species of Concern		Butler	Mammal	Microtus ochrogaster	Prairie Vole	No	1960	
Species of Concern		Butler	Mammal	Microtus pinetorum	Woodland Vole	No	1944	
Species of Concern		Butler	Mammal	Myotis lucifugus	Little Brown Bat	No	2009	
Species of Concern	Threatened	Butler	Mammal	Myotis septentrionalis	Northern Long-eared Bat	No		*
Species of Concern		Butler	Mammal	Perimyotis subflavus	Tri-colored Bat	No	2010	
Species of Concern		Butler	Mammal	Peromyscus maniculatus	Deer Mouse	No	1982	
Species of Concern		Butler	Mammal	Synaptomys cooperi	Southern Bog Lemming	No	1989	
Species of Concern		Butler	Mammal	Taxidea taxus	Badger	No	2006	
Species of Concern		Butler	Reptile - Snake	Regina septemvittata	Queensnake	No	1984	
Special Interest		Butler	Bird	Seiurus noveboracensis	Northern Waterthrush	No	2011	

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**ATTACHMENT D**

**SITE PHOTOGRAPHS**

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*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 1. Representative view of Wetland 1 (PEM). Photograph taken facing to the west.



Photograph 2. Representative view of maintained lawn/existing ROW habitat in southern portion of replacement pipeline area of impact. Photograph taken facing to the south.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 3. View of potential roost tree (PRT) 1, a common hackberry (*Celtis occidentalis*).  
Photograph taken facing to the southwest.



Photograph 4. View of potential roost tree (PRT) 1, a common hackberry (*Celtis occidentalis*).  
Photograph taken facing to the south.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 5. Representative view of maintained lawn/existing ROW habitat in middle portion of replacement pipeline area of impact, near the PRT-1. Photograph taken facing to the north



Photograph 6. Representative view of maintained lawn/existing ROW habitat in northern portion of replacement pipeline area of impact. Photograph taken facing to the south.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 7. Representative view of Wetland 2 (PEM) habitat. Photograph taken facing to the northwest.



Photograph 8. Representative view of Wetland 2 (PEM) sample point (SP-3) vicinity. Photograph taken facing to the west.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 9. Representative view of Wetland 2 (PEM) habitat. Photograph taken facing to the east.



Photograph 10. Representative view of Wetland 2 (PSS) habitat. Photograph taken facing to the northwest.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 11. Representative view of Wetland 2 (PSS) habitat. Photograph taken facing to the east.



Photograph 12. Representative view of first growth/limited second growth forest habitat. Photograph taken facing to the northwest.



*Line A000b Pipeline Replacement Project*  
*Photographed on February 12, 2018*



Photograph 13. Representative view of maintained lawn/existing ROW habitat in northern, forested portion of construction laydown and access road to pipeline replacement area.  
Photograph taken facing to the east



Photograph 14. Representative view of northeastern wooded portion of the woodlot that is intended for tree clearing. No PRTs observed. Photograph taken facing to the east.

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**ATTACHMENT E**

**RUNNING BUFFALO CLOVER SURVEY REPORT**

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**RUNNING BUFFALO CLOVER SURVEY REPORT**

**LINE A000B PIPELINE REPLACEMENT PROJECT  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO**

**Prepared For:**

**DUKE ENERGY OHIO, INC.  
139 EAST FOURTH STREET  
CINCINNATI, OHIO 45202**

**Prepared By:**

**CIVIL & ENVIRONMENTAL CONSULTANTS, INC.  
CINCINNATI, OHIO**

**CEC Project 164-513**

**DECEMBER 2017**



**Civil & Environmental Consultants, Inc.**



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P:\2016\164-513\Final Documents\RBC\R - 164-513 FINAL RBC Survey Report.docx

## EXECUTIVE SUMMARY

On May 31, 2017, Civil & Environmental Consultants, Inc. conducted a running buffalo clover (RBC) (*Trifolium stoloniferum*; federally-listed endangered) survey of Duke Energy Ohio, Inc.'s (Duke Energy) Line A000B Pipeline Replacement Project ("Project"), located in Liberty Township, Butler County, Ohio. CEC surveyed approximately 0.59 acres of potential RBC habitat or about 13 percent of the total Project area. The remaining areas within the approximately 4.7 acre Project area do not provide suitable habitat conditions for the RBC based on one or more of the following habitat considerations: extent of disturbance, solar exposure, soil saturation, and/or a dense understory. No RBC individuals or populations were observed during the survey. The survey was conducted following standard methods for endangered plant surveys, as approved by the United States Fish and Wildlife Service (USFWS), which included species-specific surveys within potentially suitable habitat during the timeframe when local RBC populations were within a vegetative state that allowed for positive identification of the species. Therefore, it is CEC's professional opinion that the proposed project is not likely to adversely affect RBC.

## 1.0 INTRODUCTION

Civil & Environmental Consultants, Inc. (CEC) conducted a running buffalo clover (RBC) (*Trifolium stoloniferum*; federally-listed endangered) survey for Duke Energy Ohio, Inc.'s (Duke Energy) Line A000B Pipeline Replacement Project ("Project"), located in Liberty Township, Butler County, Ohio. Duke Energy proposes to replace approximately 0.37 miles (1,971 linear feet) of a single existing 20-inch spiral welded bare steel high pressure natural gas pipeline with a new 20-inch corrosion protected steel pipe. CEC studied a 100-foot-wide corridor centered on the proposed pipeline replacement, totaling approximately 4.7 acres.

CEC conducted a RBC species habitat assessment, followed by a presence-absence survey within the Project study corridor on May 31, 2016. The habitat survey found approximately 0.59 acre of potential RBC habitat within the Project study corridor (Figures 3-4). Following the habitat survey, CEC conducted a presence-absence survey for RBC within the 0.59 acre of potential habitat. The survey was conducted following standard methods and guidelines for endangered plant surveys, as approved by the USFWS, which included a species-specific survey within potentially suitable habitat during the flowering period from late spring to early summer, as to allow for positive identification of the species. Detailed information on RBC life history and distribution, survey methods employed, and survey results are included in this report.



## **2.0 BACKGROUND**

The Project study corridor is located entirely within Liberty Township. The Project area is completely surrounded by low density residential properties with manicured lawns and small mid-successional forested lots, which are bound by Princeton Road to the north, Yankee Road to the south and west, and Cincinnati Dayton Road to the east. Topography within the Project area consists of level terrain. Elevations within the Project study corridor are mapped to range from approximately 840 feet to 850 feet above mean sea level (AMSL). No hydrologic features were observed within the Project area (Figures 4-5). Drainage within the Project area is to Hughes Creek. The full extent of the Project study corridor is located outside of the Federal Emergency Management Agency (FEMA) 100-year floodplain.

The general types of habitats where the RBC survey was conducted included mowed residential lawns and existing maintained pipeline right-of-way (ROW) habitat with scattered over story trees (Figures 4-5). Representative photographs of the habitats are provided in Appendix A. The RBC survey was conducted within the Project area based on the presence of potentially suitable RBC survey habitat and the potential for this species to occur within Butler County, Ohio (Appendix B).

### **3.0 RUNNING BUFFALO NATURAL HISTORY**

#### **3.1 REASON FOR LISTING**

RBC was listed by the USFWS as federally endangered on July 6, 1987 (50 FR 21478-21480) (USFWS 2007). Specific threats identified by the RBC Recovery Team in 1995 were: 1) any irreversible, catastrophic disturbance, such as road construction that completely destroys the habitat and/or kills all plants and seeds within the path of the disturbance; 2) the closing of forest canopies through succession to the point of severe shading, leading to reduced flower and fruit production; 3) the elimination of bison leading to reduced seed dispersal and release of competing vegetation; 4) low population size and associated fragility and susceptibility to catastrophe (including genetic diversity concerns); 5) excessive herbivory; 6) viral and fungal diseases; 7) reduction in pollinators; and 8) competition from non-native, invasive plant species (USFWS 2007).

#### **3.2 DESCRIPTION**

RBC is a member of the Fabaceae (pea) family that produces erect flowering stems, 10 to 30 centimeters (cm) tall, that send out long basal runners (stolons) (USFWS 2007). The basal runners root at the nodes and produce leaves that have 1 to 2 cm long ovate-lanceolate stipules, whose tips gradually narrow to a distinctive point (USFWS 2007). The plant produces 9 to 12 millimeter (mm) long round white flowers from mid-April to June, with fruiting occurring from May to July. A single plant is defined as an individual rooted crown (USFWS 2007). These crowns may occur singly or be attached to other rooted crowns by stolons. Brooks (1983) provides a more comprehensive description of this species.

#### **3.3 DISTRIBUTION**

Historically, RBC was found from the central plains to the Appalachian Mountains. The species was once considered extinct until a single population was rediscovered in West Virginia in 1983 (Brooks 1983). Since then, populations have been discovered in Indiana, Kentucky, Missouri, and

Ohio. Current populations are divided into three regions based on proximity to each other and overall habitat similarities. These regions are Appalachian (West Virginia and southeastern Ohio), Bluegrass (southwestern Ohio, central Kentucky, and southeast Indiana), and Ozark (Missouri) (USFWS 2007). A total of 108 populations of RBC are currently known from Ohio, Indiana, Kentucky, Missouri, and West Virginia (NatureServe 2015; USFWS 2007, 2008).

### **3.4 HABITAT**

Habitat for RBC typically includes locations with partial or filtered sunlight and with moist, fertile soils that have been exposed to long-term moderate patterns of disturbance (CPC 2016). It is thought that large herbivores like bison and cattle provided the necessary scarification of the soil for plants to germinate. Populations of this species are often found in the ecotone between forest and tallgrass prairie habitats (CPC 2016).

Additionally, others describe the habitat of this species as including mesophytic woodlands (Isely 1998), moist, well-drained disturbed woods associated with streams (Gleason and Cronquist 1991), and open woods, borders, and forest clearings (Cusick 1989). It has been reported from a variety of habitats, including mesic woodlands, savannahs, floodplains, stream banks, sandbars (especially where old trails cross or parallel intermittent streams), grazed woodlots, forested lawn areas or trails that are infrequently mowed (e.g. in cemeteries, parks, and residential lawns), old logging roads, jeep trails, skidder trails, mowed wildlife openings within mature forest, and steep ravines (USFWS 2007). No critical habitat has been designated for this species (NatureServe 2015).

### **3.5 RECENT HISTORY OF SPECIES IN OHIO**

RBC was rediscovered in Ohio in 1988 and is listed as endangered by the state of Ohio. According to the USFWS (2007), 18 extant populations and eight extirpated populations were known from Ohio, as of 2005. Populations have been primarily found in mesic forest and lawn habitats in Hamilton, Clermont, Brown, and Lawrence counties. Most of the known populations are reportedly located on county park lands and have been managed to protect and encourage RBC.



The first population on Federal land in Ohio was located in 2005 on Wayne National Forest (USFWS 2007).

## **4.0 SURVEY METHODOLOGY**

### **4.1 LITERATURE REVIEW**

A literature review of pertinent articles relating to the RBC was conducted as part of the background data acquisition activities for this study. The USFWS County Distribution List of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species in Ohio was reviewed during the initial stages of this project to obtain information concerning known threatened and endangered species populations within the area (USFWS 2016). The USFWS Butler County, Ohio listing reported that the Project area was within the known range of the RBC, though site specific species occurrences were not known. Several additional articles from the scientific literature were obtained and reviewed for additional information of use to the field study program (as cited in the references section). This information collected prior to conducting the field study was useful in supplementing the information concerning the preferred habitat conditions of known RBC populations in the region.

### **4.2 PRE-SURVEY KNOWN POPULATION FIELD VERIFICATION**

In addition to the literature review, a pre-survey verification of a known RBC population was conducted at the Dinsmore Woods State Nature Preserve in Boone County, Kentucky. The purpose of this verification was to determine the precise flowering period and “phenophase” of the known population. This would allow the field survey to be conducted knowing the growth condition of the species to assist in better observation and species presence determinations. During the pre-survey site verification, photographs of the condition of the existing known population were made and the specific plant growth stage was noted. In addition, attention was directed toward observation of plant associations, soils, amount of vegetative shading, duration of disturbance, and amount of disturbance that were habitat characteristics of the known RBC population. Appendix A-2 contains representative photographs of the RBC population that was observed in Dinsmore Woods State Nature Preserve, as photographed by CEC on May 16, 2017.

#### 4.3 POTENTIAL RBC HABITAT AND PRESENCE-ABSENCE SURVEY

On May 31, 2017, CEC biologist and USFWS approved RBC surveyor Joey Van Skaik conducted a RBC habitat survey, followed by a RBC presence-absence survey of the Project area. This two-phased approach involved an initial ground truthing effort to identify areas within the Project study corridor that contained suitable habitat for the RBC. The areas that were identified as potential RBC habitat were subsequently and systematically searched to determine the presence or absence of the species.

The presence-absence survey involved walking transects spaced approximately 10 to 15 feet apart, depending on the density of vegetation in the understory. Observed species of clover (*Trifolium* spp.), or with clover-like leaves, were visually reviewed when encountered. A Trimble GeoXT Global Positioning System (GPS) was used to guide the field survey relative to the limits of the Project study corridor and to establish approximate coordinates of photograph points, voucher specimen locations, and other features of interest. CEC surveyed maintained, early successional lawn and pipeline right-of-way habitat with scattered overstory trees, and mixed early successional/right-of-way (ROW) habitat.

Dominant plant species in the overstory, understory, and herbaceous ground cover were documented. See Appendix A-1 for representative photographs of the areas that were surveyed for RBC within the Project study corridor. Areas that lacked potentially suitable habitat and/or contained dense vegetation were not included in the transect survey.



## 5.0 RESULTS

The RBC habitat survey identified a total of 0.59 acre of potential RBC habitat at three sites within the Project study corridor. The subsequent presence-absence survey at these sites did not identify any individuals or populations of RBC. Four RBC look-alikes were observed during the survey, including three plants from the leguminous pea family and one plant from the wood-sorrel family. These four species of RBC look-alikes include white clover (*Trifolium repens*), red clover (*Trifolium pratense*), low hop clover/field clover (*Trifolium campestre*), and common yellow oxalis (*Oxalis stricta*). A summary of the RBC survey results for the Project study corridor and reference population location are presented below on Table 1.

The observation and photo documentation of the known RBC population at the Dinsmore Woods State Nature Preserve in Boone County, Kentucky assisted significantly in identifying the stage of growth and flowering of the species in the area.

**Site 1** is a residential area bisected by an existing pipeline right-of-way, surrounded by Mid-successional hardwood trees with cleared understory and manicured lawns. The site receives periodic disturbance as evidenced by the frequent mowing along the ROW and residential lawns. The site receives filtered solar exposure and is located on rich soil. Representative photographs of this habitat type are included in Appendix A-1.

The overstory vegetation community is dominated by silver maple (*Acer saccharinum*), while the herbaceous plant community included white clover (*Trifolium repens*), red clover (*Trifolium pratense*), narrowleaf plantain (*Plantago lanceolata*), common yellow oxalis (*Oxalis stricta*) and grasses (*Poa* and *Festuca* spp.).

**Site 2** is also a residential area bisected by an existing pipeline right-of-way, surrounded by Mid-successional hardwood trees with cleared understory state and manicured lawns. The site receives periodic disturbance as evidenced by the frequent mowing along the ROW and residential lawns. The site receives occasional to periodic disturbance and filtered solar exposure. Representative photographs of this habitat type are included in Appendix A-1.

**TABLE 1**  
**RUNNING BUFFALO CLOVER SURVEY RESULTS**

Survey Date	Site Name	Latitude	Longitude	Site Location	Habitat Type	RBC Present/ Absent
May 16, 2017	Reference Population	39.000841	-84.814890	Dinsmore Woods State Nature Preserve Boone County, Kentucky	Walking trail leading to ridge top and adjacent cemetery. Site receives periodic disturbance and filtered sunlight.	Present
May 31, 2017	1	39.381920	-84.382881	North end of Project survey area, along pipeline right-of-way and residential housing lawns.	Mid-successional trees with cleared understory bisected by a pipeline right-of-way and manicured lawns. Site receives periodic disturbance and filtered sunlight.	Absent
May 31, 2017	2	39.381022	-84.383175	Mid-section of Project survey area, along pipeline right-of-way and residential housing lawns.	Mid-successional trees with cleared understory bisected by a pipeline right-of-way and manicured lawns. Site receives periodic disturbance and filtered sunlight.	Absent
May 31, 2017	3	39.380417	-84.383248	Mid-section of Project survey area, along pipeline right-of-way and residential housing lawns.	Mid-successional trees with cleared understory bisected by a pipeline right-of-way and manicured lawns. Site receives periodic disturbance and filtered sunlight.	Absent

The overstory vegetation community is dominated by silver maple (*Acer saccharinum*), while the herbaceous plant community included narrowleaf plantain (*Plantago lanceolata*) and grasses (*Poa* and *Festuca* spp.).

**Site 3** is also a residential area bisected by an existing pipeline right-of-way, surrounded by Mid-successional hardwood trees with a cleared understory state and manicured lawns. The site receives periodic disturbance as evidenced by the frequent mowing along the ROW and residential lawns. The site receives occasional to periodic disturbance and filtered solar exposure. Representative photographs of this habitat type are included in Appendix A-1.

The overstory vegetation community is dominated by silver maple (*Acer saccharinum*), while the herbaceous plant community included red clover (*Trifolium pratense*), thistle narrowleaf plantain (*Plantago lanceolata*), common yellow oxalis (*Oxalis stricta*) and grasses (*Poa* and *Festuca* spp.).



## **6.0 CONCLUSION**

Mid-successional hardwood trees with cleared understory habitat receiving filtered solar exposure, mowed areas, and residential housing are present within the Project area and surrounding vicinity. Based on the presence of these habitats, there is a potential for the presence of RBC. The RBC survey that was conducted by CEC on May 31, 2017, did not reveal RBC individuals or populations within the Project area (Figures 4-5). Therefore, it is CEC's professional opinion that the proposed project is not likely to adversely affect the RBC.

## 7.0 REFERENCES

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## **FIGURES**

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DUKE ENERGY  
LINE A000B PIPELINE REPLACEMENT PROJECT  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

## REGIONAL LOCATION MAP

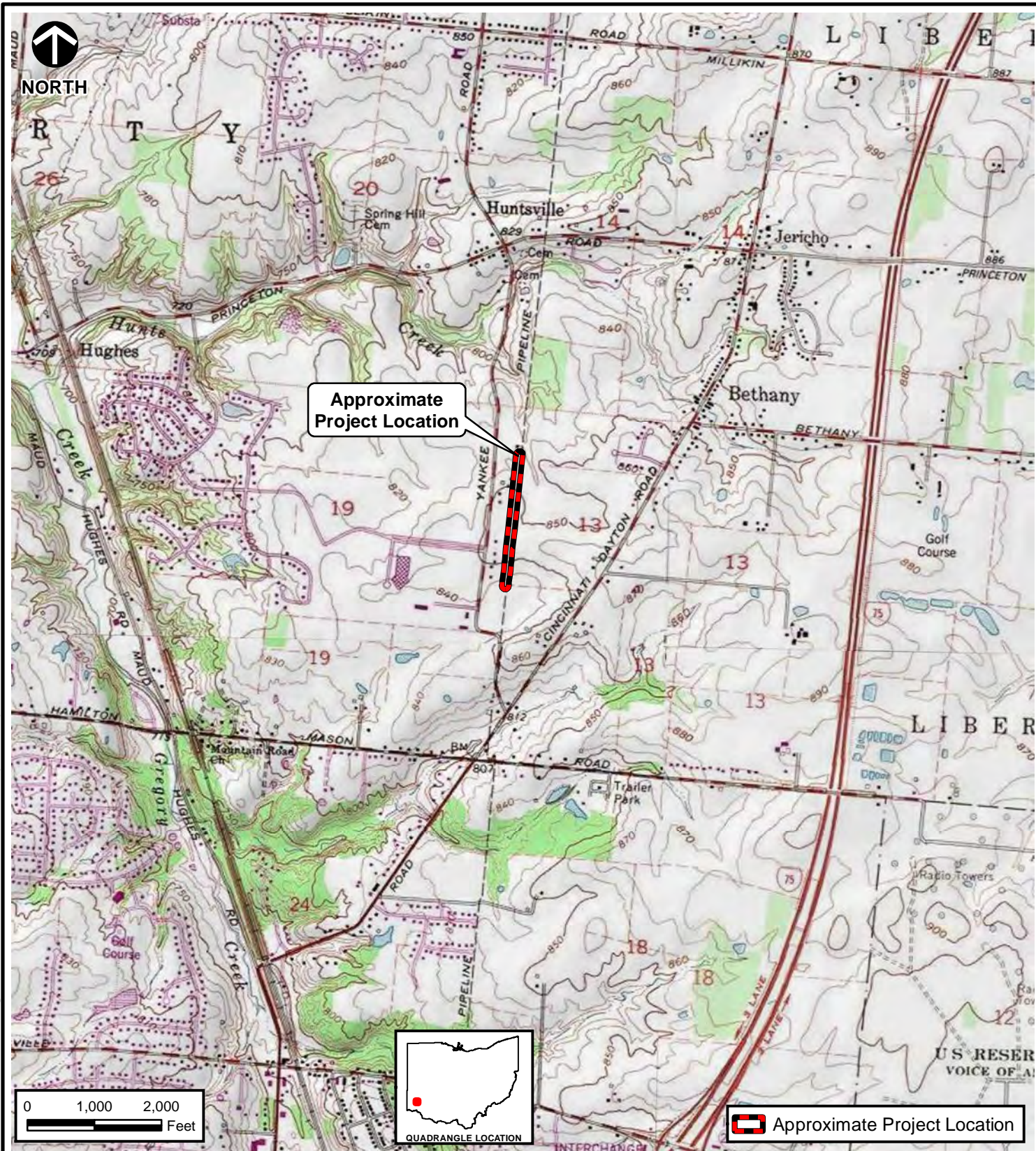
FIGURE NO:

1

**Signature on File \***



\\sr-cinc\projects\2016\164-513-GIS\Maps\RBC\164513\_RBC\_Figure 2.mxd - 12/18/2017 - 4:26:53 PM (arodrian)



SOURCES: PORTIONS OF THE USGS 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAPS OF TRENTON, OHIO (1983), MONROE, OHIO (1975), MASON, OHIO (1982), AND GLENDALE, OHIO (1982).



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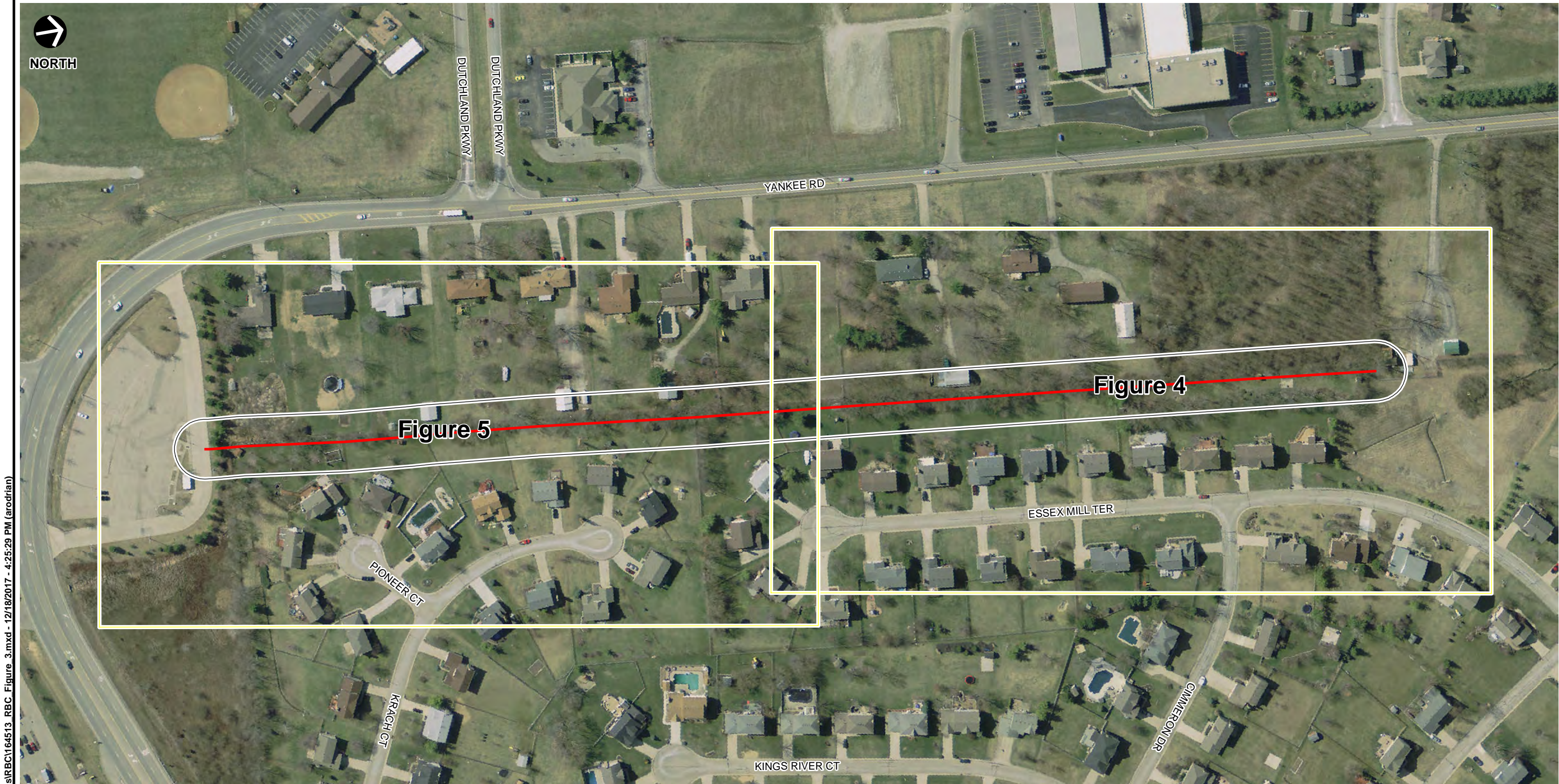
DUKE ENERGY  
LINE A000B PIPELINE REPLACEMENT PROJECT  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

## PROJECT LOCATION MAP

DRAWN BY:	JAV	CHECKED BY:	JAV	APPROVED BY:	PMS*	FIGURE NO:
DATE:	DECEMBER 18, 2017	DWG SCALE:	1" = 2,000'	PROJECT NO:	164-513	<b>2</b>

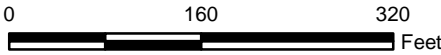
Signature on File \*





SOURCE: OHIO STATEWIDE IMAGERY PROGRAM (OSIP) MOSAIC AERIAL PHOTOGRAPHY OF BUTLER COUNTY, 2011.

Proposed Replacement Pipeline  
100-Foot Wide Project Study Corridor



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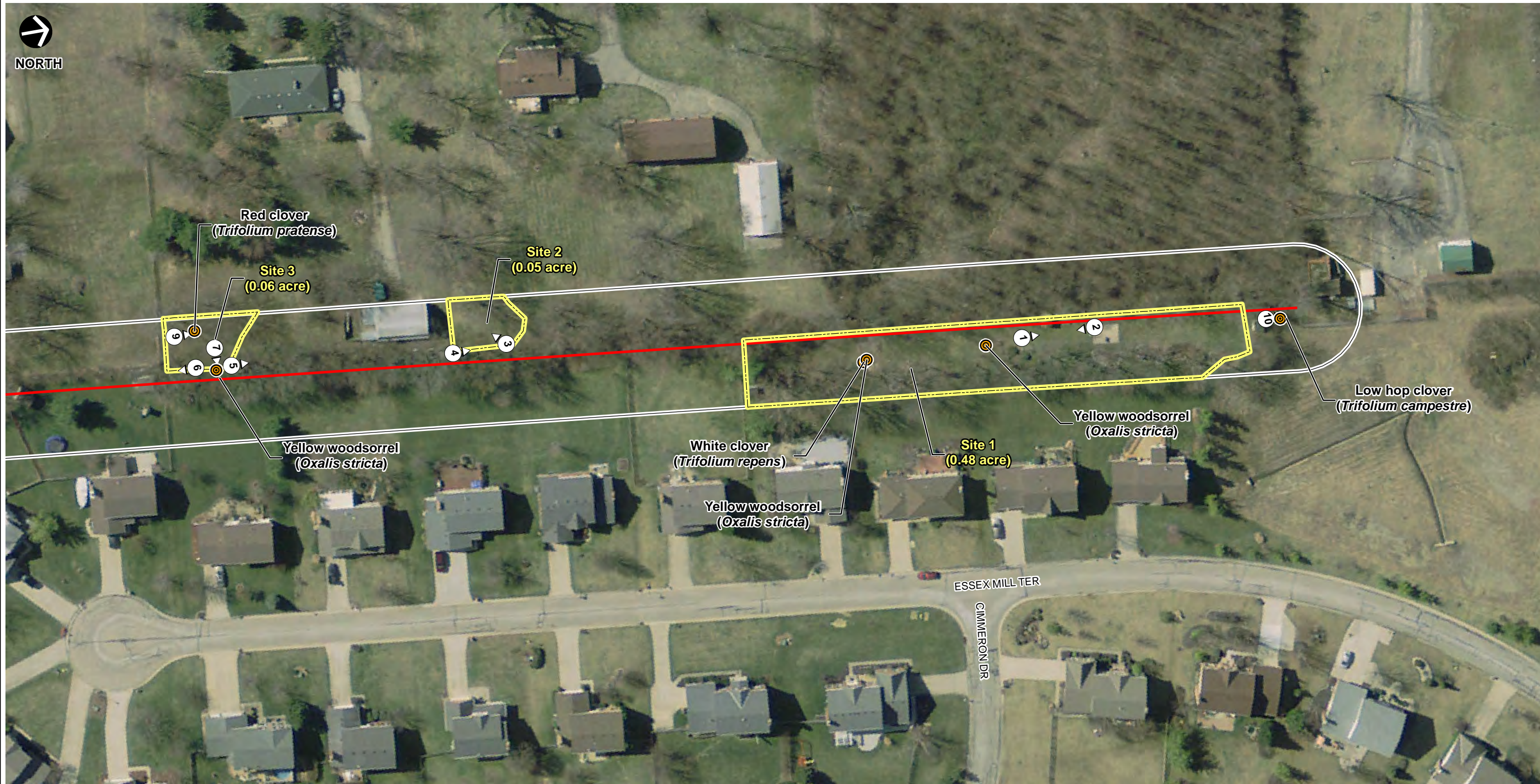
DUKE ENERGY  
LINE A000B PIPELINE REPLACEMENT PROJECT  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

RUNNING BUFFALO CLOVER SURVEY  
INDEX MAP

DRAWN BY:	JAV	CHECKED BY:	JAV	APPROVED BY:	PMS*	FIGURE NO:
DATE:	DECEMBER 18, 2017	DWG SCALE:	1" = 160'	PROJECT NO:	164-513	<b>3</b>

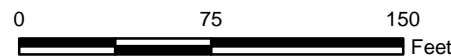


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SOURCE: OHIO STATEWIDE IMAGERY PROGRAM (OSIP) MOSAIC AERIAL PHOTOGRAPHY OF BUTLER COUNTY, 2011.

- 100-Foot Wide Project Study Corridor
- Proposed Replacement Pipeline
- Potential Running Buffalo Clover Habitat
- Running Buffalo Clover Look-A-Like Voucher Specimen Location
- Photograph Point Location

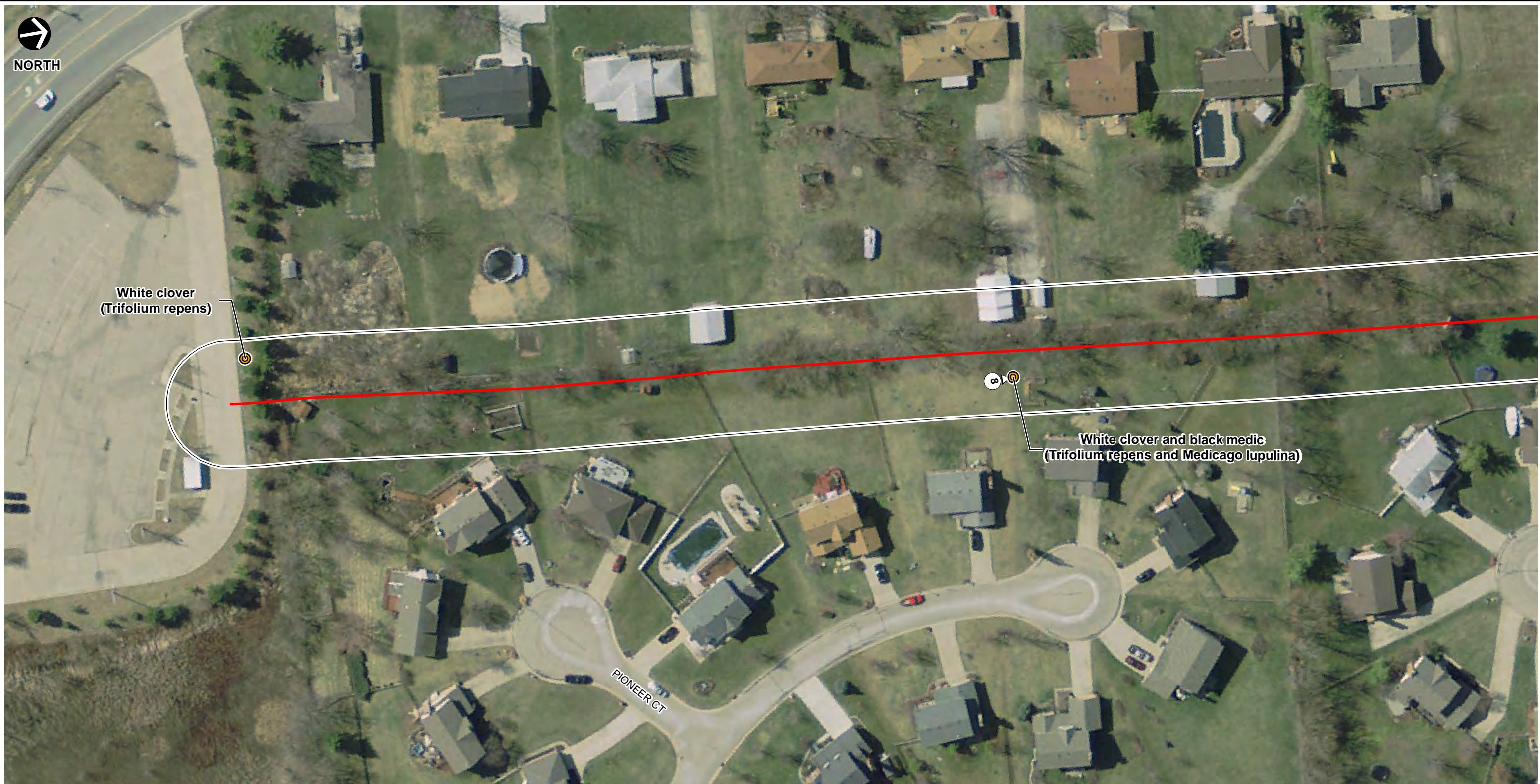


 <b>Civil &amp; Environmental Consultants, Inc.</b> 5899 Montclair Boulevard - Cincinnati, OH 45150 513-985-0226 - 800-759-5614 www.cecinc.com		DUKE ENERGY LINE A000B PIPELINE REPLACEMENT PROJECT LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO	
		RUNNING BUFFALO CLOVER SURVEY MAP	
DRAWN BY: DMG	CHECKED BY: JBF	APPROVED BY: PMS*	FIGURE NO: 4
DATE: DECEMBER 18, 2017	DWG SCALE: 1" = 75'	PROJECT NO: 164-513	

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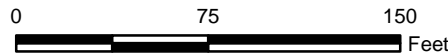


\\sr-cinc\projects\2016\164-513-GIS\Maps\RBC\164513\_RBC\_Figure 4 5.mxd - 12/18/2017 - 4:24:44 PM (arodrian)



SOURCE: OHIO STATEWIDE IMAGERY PROGRAM (OSIP) MOSAIC AERIAL PHOTOGRAPHY OF BUTLER COUNTY, 2011.

- 100-Foot Wide Project Study Corridor
- Proposed Replacement Pipeline
- Potential Running Buffalo Clover Habitat
- Running Buffalo Clover Look-A-Like Voucher Specimen Location
- Photograph Point Location



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		RUNNING BUFFALO CLOVER SURVEY MAP	
DRAWN BY: DMG	CHECKED BY: JBF	APPROVED BY: PMS*	FIGURE NO: 5
DATE: DECEMBER 18, 2017	DWG SCALE: 1" = 75'	PROJECT NO: 164-513	



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**APPENDIX A**

**PHOTOGRAPHS**

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**APPENDIX A-1**

**POTENTIAL RBC HABITAT AND RBC LOOK-ALIKE VOUCHER  
SPECIMENS**

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Photograph 1. Potential running buffalo clover habitat at Site 1. No running buffalo clover individuals or populations were identified within this area during the presence-absence survey.  
Date: May 31, 2017.



Photograph 2. Another view of potential running buffalo clover habitat at Site 1. Date: May 31, 2017.





Photograph 3. Potential running buffalo clover habitat at Site 2. No running buffalo clover individuals or populations were identified within this area during the presence-absence survey. Date: May 31, 2017.



Photograph 4. Another view of potential running buffalo clover habitat at Site 2 during the presence-absence survey. Date: May 31, 2017.





Photograph 5. Potential running buffalo clover habitat at Site 3. No running buffalo clover individuals or populations were identified within this area during the presence-absence survey. Date: May 31, 2017.



Photograph 6. Another view of potential running buffalo clover habitat at Site 3. No running buffalo clover individuals or populations were identified within this area during the presence-absence survey. Date: May 31, 2017.





Photograph 7. Common yellow oxalis (*Oxalis stricta*) observed during the presence-absence survey.  
Date: May 31, 2017.



Photograph 8. White clover (*Trifolium repens*) and black medic (*Medicago lupulina*) observed during the habitat survey. Date: May 31, 2017.





Photograph 9. Red clover (*Trifolium pratense*) observed during the presence-absence survey. Date: May 31, 2017.



Photograph 10. Low hop clover (*Trifolium campestre*) observed during the habitat survey. Date: May 31, 2017



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**APPENDIX A-2**

**REFERENCE POPULATION – DINSMORE WOODS STATE NATURE  
PRESERVE**

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Photograph 11. Running Buffalo Clover (RBC) (*Trifolium stoloniferum*) reference specimen from the Dinsmore Woods State Nature Preserve in Boone County, Kentucky. Note the opposite leaflets on the flowering stem. Date: May 16, 2017.

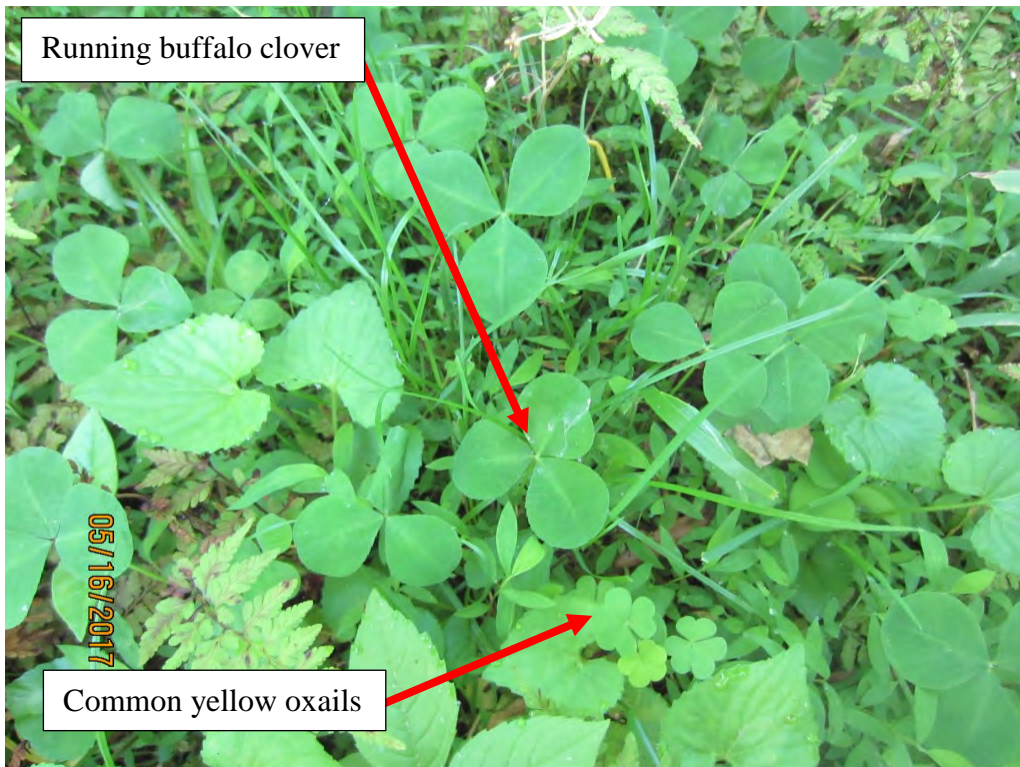


Photograph 12. Another view of RBC reference specimens from the Dinsmore Woods State Nature Preserve. Note the presence of stipules, an identifying characteristic. Date: May 16, 2017.





Photograph 13. View of RBC rooted crown, an identifying characteristic. Date: May 16, 2017.



Photograph 14. Comparison of RBC look-alike common yellow oxalis (*Oxalis stricta*) to running buffalo clover at the Dinsmore Woods State Nature Preserve. Date: May 16, 2017.





Photograph 15. RBC reference population habitat at the Dinsmore Woods State Nature Preserve.  
Date: May 16, 2017.

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## **APPENDIX B**

### **COUNTY DISTRIBUTION OF FEDERALLY-LISTED THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES IN BUTLER COUNTY, OHIO, REVISED MAY 2017**

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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
4625 Morse Road, Suite 104  
Columbus, Ohio 43230  
(614) 416-8993 / FAX (614) 416-8994

### Federally Endangered, Threatened, Candidate Species, and Species of Concern in Ohio by County May 2017

COUNTY	SPECIES
ADAMS	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), fanshell (E), rayed bean (E), pink mucket pearly mussel (E), sheepsnose (E), snuffbox (E), timber rattlesnake (SC), bald eagle (SC)
ALLEN	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
ASHLAND	Indiana bat (E), northern long-eared bat (T), eastern hellbender (SC), bald eagle (SC)
ASHTABULA	Indiana bat (E), northern long-eared bat (T), Kirtland's warbler (E), piping plover (E), clubshell (E), snuffbox (E), rufa red knot (T), eastern massasauga (T), bald eagle (SC)
ATHENS	Indiana bat (E), northern long-eared bat (T), American burying beetle (E), fanshell (E), sheepsnose (E), pink mucket pearly mussel (E), snuffbox (E), running buffalo clover (E), timber rattlesnake (SC), bald eagle (SC)
AUGLAIZE	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
BELMONT	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), eastern hellbender (SC), bald eagle (SC)
BROWN	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), fanshell (E), pink mucket pearly mussel (E), rayed bean (E), sheepsnose (E), snuffbox (E), bald eagle (SC)
BUTLER	Indiana bat (E), northern long-eared bat (T), rayed bean (E), running buffalo clover (E), eastern massasauga (T), bald eagle (SC)
CARROLL	Indiana bat (E), northern long-eared bat (T), bald eagle (SC)
CHAMPAIGN	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
CLARK	Indiana bat (E), northern long-eared bat (T), rayed bean (E), eastern prairie fringed orchid (T), eastern massasauga (T), bald eagle (SC)
CLERMONT	Indiana bat (E), northern long-eared bat (T), running buffalo clover (E), fanshell (E), pink mucket pearly mussel (E), rayed bean (E), sheepsnose (E), snuffbox (E), bald eagle (SC)
CLINTON	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), bald eagle (SC)
COLUMBIANA	Indiana bat (E), northern long-eared bat (T), eastern massasauga (T), eastern hellbender (SC), bald eagle (SC)
COSHOCTON	Indiana bat (E), northern long-eared bat (T), clubshell (E), fanshell (E), rayed bean (E),



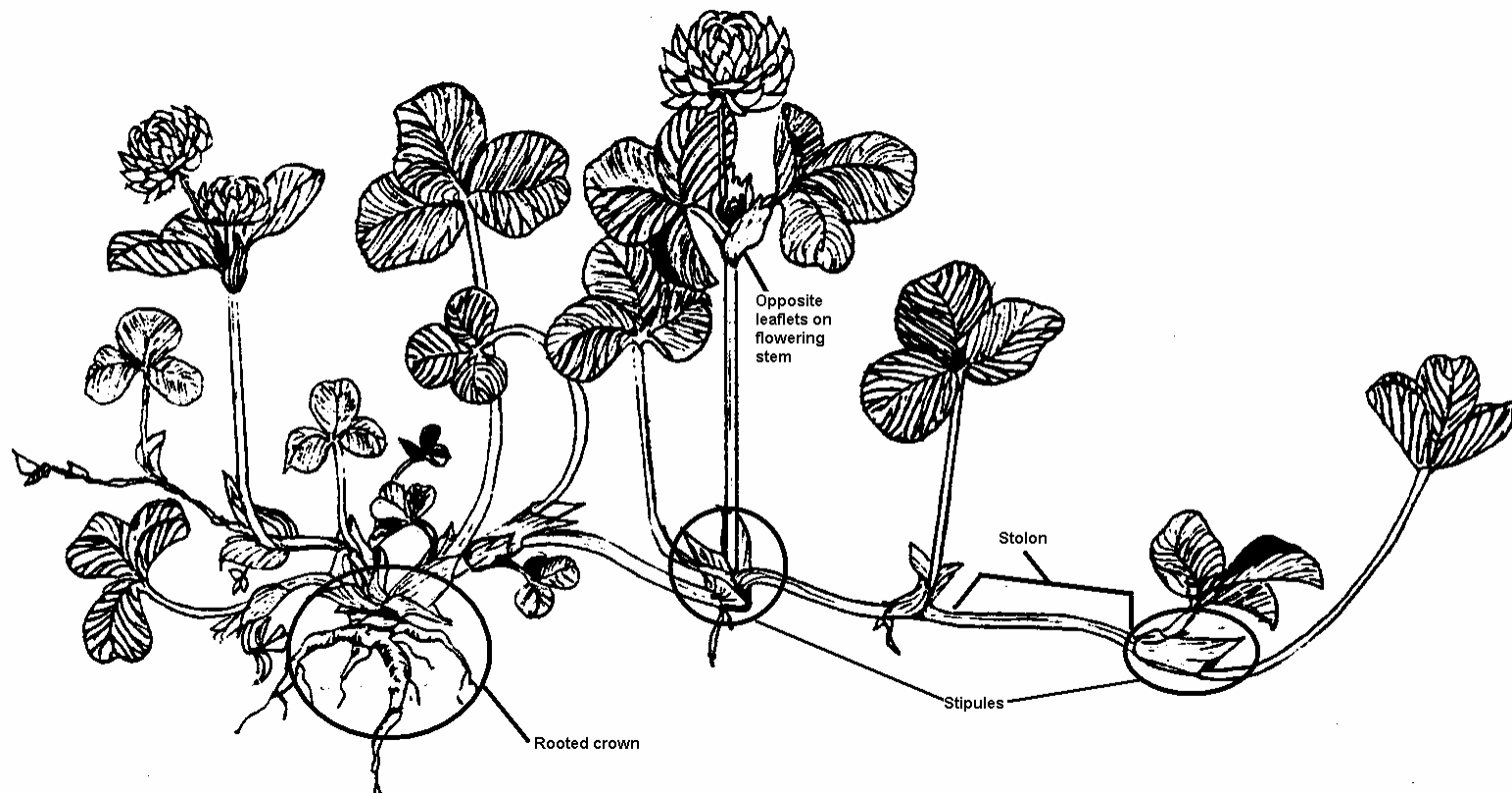
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**APPENDIX C**

**RUNNING BUFFALO CLOVER SCHEMATIC**

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## Running Buffalo Clover Schematic



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**ATTACHMENT 6**

**U.S. FISH & WILDLIFE SERVICE AND OHIO DEPARTMENT OF  
NATURAL RESOURCES RESPONSE LETTERS**

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**U.S. FISH & WILDLIFE SERVICE RESPONSE LETTER**

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**Frodge, Jon**

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**From:** Korfel, Lindsey <lindsey\_korfel@fws.gov>  
**Sent:** Thursday, March 22, 2018 1:20 PM  
**To:** Frodge, Jon  
**Subject:** Re: 03E15000-2018-TA-0974 Line A000B Pipeline Replacement Project, Liberty Twp., Butler Co., OH



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



TAIL # 03E15000-2018-TA-0974

Dear Mr. Frodge,

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

**FEDERALLY LISTED SPECIES COMMENTS:** All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags  $\geq 3$  inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-

made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees  $\geq 3$  inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees  $\geq 3$  inches dbh cannot be avoided, we recommend that removal of any trees  $\geq 3$  inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see <http://www.fws.gov/midwest/endangered/mammals/nleb/index.html>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that summer surveys may only be conducted between June 1 and August 15.

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 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.

Due to the project type, size, and location, we do not anticipate adverse effects to any other 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 Service should be initiated to assess any potential impacts.

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 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](mailto: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](mailto:ohio@fws.gov).

Sincerely,

**Lindsey M. Korfel**

Wildlife Biologist



U.S. Fish and Wildlife Service  
Ohio Field Office  
4625 Morse Road, Suite 104  
Columbus, OH 43230  
614.416.8993 x. 29

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**OHIO DEPARTMENT OF NATURAL RESOURCES RESPONSE LETTER**

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# Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

**Office of Real Estate**  
*Paul R. Baldrige, Chief*  
2045 Morse Road – Bldg. E-2  
Columbus, OH 43229  
Phone: (614) 265-6649  
Fax: (614) 267-4764

March 27, 2018

Mel Simkins  
CEC, Inc.  
5899 Montclair Blvd.  
Cincinnati, Ohio 45150

**Re:** 18-322; Line A000b Pipeline Replacement Project

**Project:** The proposed project involves the replacement of a portion of the A000b pipeline.

**Location:** The proposed project is in Liberty 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 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: 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, 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, 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 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, the type of habitat present at the project site, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the Sloan's crayfish (*Orconectes sloanii*), a state threatened species. Due to the location, and that there is no in-water work proposed, 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](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 John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler  
ODNR Office of Real Estate  
2045 Morse Road, Building E-2  
Columbus, Ohio 43229-6693  
John.Kessler@dnr.state.oh.us

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**ATTACHMENT 7**

**OHIO HISTORIC PRESERVATION OFFICE (OHPO)**  
**AGENCY COORDINATION**

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## OHIO HISTORIC PRESERVATION OFFICE: RESOURCE PROTECTION AND REVIEW

### Section 106 Review - Project Summary Form

For projects requiring a license from the Federal Communications Commission, please use FCC Forms 620 or 621. **DO NOT USE THIS FORM.**

#### **SECTION 1: GENERAL PROJECT INFORMATION**

All contact information provided must include the name, address and phone number of the person listed. Email addresses should also be included, if available. Please refer to the Instructions or contact an OHPO reviewer (mailto:Section106@ohiohistory.org) if you need help completing this Form. Unless otherwise requested, we will contact the person submitting this Form with questions or comments about this project.

Date: **15 March 2018**

Name/Affiliation of person submitting form: **Samuel P. Snell, MS, RPA Civil & Environmental Consultants, Inc.**

Mailing Address: **530 East Ohio Street, Suite G, Indianapolis, IN 46204**

Phone/Fax/Email: **317-655-7777, ssnell@cecinc.com**

#### A. Project Info:

1. This Form provides information about:

New Project Submittal:

**YES**

Additional information relating to previously submitted project:

OHPO/RPR Serial Number from previous submission:

2. Project Name (if applicable): **Duke Energy LINE A000B Pipeline Replacement**

3. Internal tracking or reference number used by Federal Agency, consultant, and/or applicant to identify this project (if applicable): **CEC 164-513**

Project Address or vicinity: **Intersection of Yankee Road and Dutchland Parkway**

B. City/Township: **Bethany/Liberty**

C. County: **Butler**

D. Federal Agency and Agency Contact. *If you do not know the federal agency involved in your project, please contact the party asking you to apply for Section 106 Review, not OHPO, for this information. HUD Entitlement Communities acting under delegated environmental review authority should list their own contact information.* **US Army Corps of Engineers (USACE) and US Fish & Wildlife Service (USFWS)**

E. Type of Federal Assistance. *List all known federal sources of federal funding, approvals, and permits to avoid repeated reviews.* **404 permit**

F. State Agency and Contact Person (if applicable): **Ohio Environmental Protection Agency (Ohio EPA)**

G. Type of State Assistance: **N/A**

H. Is this project being submitted at the direction of a state agency **solely** under Ohio Revised Code 149.53 or at the direction of a State Agency? *Answering yes to this question means that you are sure that no federal funding, permits or approvals will be used for any part of your project, and that you are seeking comments only under ORC 149.53.*  
**NO**

I. Public Involvement- Describe how the public has been/will be informed about this project and its potential to affect historic properties. Please summarize how they will have an opportunity to provide comments about any effects to historic properties. (This step is required for all projects under 36 CFR § 800.2): **Public notice advertised in the local newspaper.**

J. Please list other consulting parties that you have contacted/will contact about this project, such as Indian Tribes, Certified Local Governments, local officials, property owners, or preservation groups. (See 36 CFR § 800.2 for more information about involving other consulting parties). Please summarize how they will have an opportunity to provide comments: **Duke Energy Ohio, Inc. (Duke Energy)**  
**Ohio EPA**  
**Ohio Historic Preservation Office (OHPO)**  
**Ohio Department of Natural Resources (ODNR)**  
**Butler County, Ohio**  
**USACE**  
**USFWS**

## **SECTION 2: PROJECT DESCRIPTION AND AREA OF POTENTIAL EFFECTS (APE)**

Provide a description of your project, its site, and geographical information. You will also describe your project's Area of Potential Effects (APE). Please refer to the Instructions or contact an OHPO reviewer if you need help with developing the APE or completing this form.

*For challenging projects, provide as much information as possible in all sections, and then check the box in Section 5.A. to ask OHPO to offer preliminary comments or make recommendations about how to proceed with your project consultation. This is recommended if your project involves effects to significant historic properties or if there may be challenging procedural issues related to your project. Please note that providing information to complete all Sections will still be required and that asking OHPO for preliminary comments may tend to delay completion of the review process for some projects.*

**A. Does this project involve any Ground-Disturbing activity: YES**

(If **Yes**, you must complete all of Section 2.A. If **No**, proceed directly to Section 2. B.)

1. General description of width, length and depth of proposed ground disturbing activity:

**Duke Energy proposes to replace approximately 600.8 m (1,971 linear ft) of Line A000B, a natural gas pipeline located in Butler County, Ohio (Figures 1–11). The pipeline replacement will be conducted within the existing 15.2 m (50 ft) wide Duke Energy right-of-way (ROW) and the 50.8 cm (20 in) replacement line will be installed approximately 1.5 m (5 ft) offset from the existing line that will be abandoned in place. An adjacent paved commuter parking lot and a Duke Energy facility will be used for project access and construction material and equipment staging. A small area outside of the existing ROW, approximately 0.05 ha (0.13 ac) in size, will be cleared of young second-growth forest and used to provide access to the ROW from the Duke Energy facility to the north (Figure 4). The total project area is 2.3 ha (5.7 ac).**

2. Narrative description of previous land use and past ground disturbances, if known: **Previous land use includes pipeline ROW, residential development, underground utilities, and paved parking areas. The project area has been significantly disturbed by the construction of the existing pipeline, other pipeline infrastructure, and a paved parking lot (Figure 4). The northern proposed staging area adjacent the existing Duke Energy facility appears to have been disturbed by previous grading and underground utilities and the southern staging area has been disturbed by the construction of a paved commuter parking lot.**
3. Narrative description of current land use and conditions: **The land use of the project area includes residential yards, pipeline related buildings, and a commuter parking lot.**

4. Does the landowner know of any archaeological resources found on the property?  
**NO** If yes, please describe:

**B. Submit the exact project site location on a USGS 7.5-minute topographic quadrangle map for all projects. Map sections, photocopies of map sections, and online versions of USGS maps are acceptable as long as the location is clearly marked. Show the project's Area of Potential Effects (APE). It should be clearly distinguished from other features shown on the map:**

1. USGS Quad Map Name: **Trenton**



2. Township/City/Village Name: **Liberty/Bethany**

- C. Provide a street-level map indicating the location of the project site; road names must be identified and legible. Your map must show the exact location of the boundaries for the project site. Show the project's Area of Potential Effects (APE). It should be clearly distinguished from other features shown on the map:
- D. Provide a verbal description of the APE, including a discussion of how the APE will include areas with the potential for direct and indirect effects from the project. Explain the steps taken to identify the project's APE, and your justification for the specific boundaries chosen:

**Because there will be no above ground structures built and the existing line will be replaced in place, the APE is the limit of disturbance (LOD) of the project.**

- E. Provide a detailed description of the project. This is a critical part of your submission. Your description should be prepared for a cold reader who may not be an expert in this type of project. The information provided must help support your analysis of effects to historic properties, not other types of project impacts. Do not simply include copies of environmental documents or other types of specialized project reports. If there are multiple project alternatives, you should include information about all alternatives that are still under active consideration:

**Duke Energy proposes to replace approximately 600.8 m (1,971 linear ft) of Line A000B, a natural gas pipeline located in Butler County, Ohio (Figures 1–38). The pipeline replacement will be conducted within the existing 15.2 m (50 ft) wide Duke Energy ROW and the 50.8 cm (20 in) replacement line will be installed approximately 1.5 m (5 ft) offset from the existing line that will be abandoned in place. An adjacent paved commuter parking lot and a Duke Energy facility will be used for project access and construction material and equipment staging. A small area outside of the existing ROW, approximately 0.05 ha (0.13 ac) in size, will be cleared of young second-growth forest and used to provide access to the ROW from the Duke Energy facility to the north (Figure 4). The total project area is 2.3 ha (5.7 ac).**

**Ground disturbing activities will involve excavating a 1.2 m (4 ft) wide trench in the existing pipeline ROW. Previous ground disturbance from the existing pipeline, existing Duke Energy facility, residential encroachment (sheds and basketball court) on the ROW, and a commuter parking lot have occurred within the project area.**

### **SECTION 3: IDENTIFICATION OF HISTORIC PROPERTIES**

Describe whether there are historic properties located within your project APE. To make that determination, use information generated from your own Background Research and Field Survey. Then choose one of the following options to report your findings. Please refer to the Instructions and/or contact an OHPO reviewer if you are unsure about how to identify historic properties for your project.

*If you read the Instructions and you're still confused as to which reporting option best fits your project, or you are not sure if your project needs a survey, you may choose to skip this section, but provide as much supporting documentation as possible in all other Sections, then check the box in Section 5.A. to request preliminary comments from OHPO. After reviewing the information provided, OHPO will then offer comments as to which reporting option is best suited to document historic properties for your project. Please note that providing information to complete this Section will still be required and that asking OHPO for preliminary comments may tend to delay completion of the review process for some projects.*

## **Recording the Results of Background Research and Field Survey:**

- A. **Summary of discussions and/or consultation with OHPO** about this project that demonstrates how the Agency Official and OHPO have agreed that no Field Survey was necessary for this project (typically due to extreme ground disturbance or other special circumstances). Please **attach copies** of emails/correspondence that document this agreement. You must explain how the project's potential to affect both archaeological and historic resources were considered.
- B. **A table that includes the minimum information** listed in the OHPO Section 106 Documentation Table (which is generally equivalent to the information found on an inventory form). This information must be printed and mailed with the Project Summary Form. To provide sufficient information to complete this Section, you must also include summary observations from your field survey, background research and eligibility determinations for each property that was evaluated in the project APE.
- C. **OHI (Ohio Historic Inventory) or OAI (Ohio Archaeological Inventory) forms-** New or updated inventory forms may be prepared using the OHI pdf form with data population capabilities, the Internet IForm, or typed on archival quality inventory forms. To provide sufficient information to complete this Section, you must include summary observations from your field survey and background research. You must also include eligibility determinations for each property that was evaluated in the project APE
- D. **A historic or archaeological survey report** prepared by a qualified consultant that meets professional standards. The survey report should meet the Secretary of the Interior's Standards and Guidelines for Identification and OHPO Archaeological Guidelines. You may also include new inventory forms with your survey, or update previous inventory forms. To complete this section, your survey report must include summary observations from your field survey, background research and eligibility determinations for each property that was evaluated within the APE.
- E. **Project Findings.** Based on the conclusions you reached in completing Section 3, please choose one finding for your project. There are (mark one):
  - Historic Properties Present in the APE:
  - No Historic Properties Present in the APE**

## **SECTION 4: SUPPORTING DOCUMENTATION**

This information must be provided for all projects.

- A. Photographs must be keyed to a street-level map, and should be included as attachments to this application. Please label all forms, tables and CDs with the date of your submission and project name, as identified in Section 1. You must present enough documentation to clearly show existing conditions at your project site and convey details about the buildings, structures or sites that are described in your submission. Faxed or photocopied photographs are not acceptable. See Instructions for more info about photo submissions or 36 CFR § 800.11 for federal documentation standards.
  - 1. Provide photos of the entire project site and take photos to/from historic properties from/towards your project site to support your determination of effect in Section 5.  
**See Attached**
  - 2. Provide current photos of all buildings/structures/sites described.
- B. Project plan, specifications, site drawings and any other media presentation that conveys detailed information about your project and its potential to affect historic properties.
- C. Copies or summaries of any comments provided by consulting parties or the public.

## **SECTION 5: DETERMINATION OF EFFECT**

- A. **Request Preliminary Comments.** For challenging projects, provide as much information as possible in previous sections and ask OHPO to offer preliminary comments or make

recommendations about how to proceed with your project consultation. This is recommended if your project involves effects to significant historic properties, if the public has concerns about your project's potential to affect historic properties, or if there may be challenging procedural issues related to your project. Please be aware that providing information in all Sections will still be required and that asking OHPO for preliminary comments may tend to delay completion of the review process for some projects.

1. We request preliminary comments from OHPO about this project:

2. Please specify as clearly as possible the particular issues that you would like OHPO to examine for your project (for example- help with developing an APE, addressing the concerns of consulting parties, survey methodology, etc.):

B. **Determination of Effect.** If you believe that you have gathered enough information to conclude the Section 106 process, you may be ready to make a determination of effect and ask OHPO for concurrence, while considering public comments. Please select and mark one of the following determinations, then explain the basis for your decision on an attached sheet of paper:

**No historic properties will be affected** based on 36 CFR § 800.4(d) (1). Please explain how you made this determination: **See attached**

No Adverse Effect [36 CFR § 800.5(b)] on historic properties. This finding cannot be used if there are no historic properties present in your project APE. Please explain why the Criteria of Adverse Effect, [36 CFR Part 800.5(a) (1)], were found not to be applicable for your project:

Adverse Effect [36 CFR § 800.5(d) (2)] on historic properties. Please explain why the criteria of adverse effect, [36 CFR Part 800.5(a) (1)], were found to be applicable to your project. You may also include an explanation of how these adverse effects might be avoided, reduced or mitigated:

*Please print and mail completed form and supporting documentation to:*

*Ohio Historic Preservation Office  
Attn: Resource Protection and Review Department Head  
Resource Protection and Review  
800 E. 17<sup>th</sup> Avenue  
Columbus, OH 43211-2497*



## SECTION 5 B

A records review encompassed the project area with a 1.6 km (1 mi) buffer area (Figures 1–5). A review of the cultural resource files database was conducted utilizing the Ohio State Historic Preservation Office (SHPO) geographic information system (GIS) online mapping system which included the following database records; National Register (NR), National Register Determination of Eligibility (DOE), National Register of Historic Places (NRHP) boundaries, the Ohio Archaeological Inventory (OAI), the Ohio Historic Inventory (OHI), Ohio Genealogical Society (OGS) cemeteries, National Road resources, and previous Phase I, II, and III cultural resource surveys. Other online resources included historic USGS 7.5 and 15 minute topographic quadrangles. Additionally, Mills 1914 Archaeological Atlas of Ohio was reviewed.

There are no previously recorded cultural resources within the proposed project area.

There are thirty-eight previously recorded aboveground resources in the records review area. The closest is the Leber Barn (OHI# But0115513). The Leber barn is recorded as being located 168.5 m (552.8 ft) southeast of the project area (Figure 5). After investigation of aerial imagery, it appears the barn was demolished between 1994–2000 for the construction of an interchange for the SR 129 Butler County Veteran's Highway. The majority of the historical structures are located northeast of the project area in the towns of Bethany and Jericho (Figure 5).

There are 11 recorded archaeological sites within the records review area, including two National Register Mounds and boundary areas. The closest recorded site is 33Bu278, located 295.4 m (969.2 ft) south of the project area (Figure 5). It appears the site was destroyed between 1994–2000 for the construction of an interchange for the SR 129 Butler County Veteran's Highway.

There are eight previously conducted Phase I archaeological surveys in the records review area. The closest is located 151.6 m (497.4 ft) south of the project area (Blank 1983) and was for the construction of SR 129 (Figure 5).

There are three Phase II or Phase III reports conducted in the records review area. The closest report is Hawkins (1992) associated with the SR 129 project and is located 272.6 m (894.3 ft) south of the project area.

The Mills (1914) atlas does shows three mound sites within the records check area. The closest is 1,280 m (4,199.5 ft) northwest of the project area (Figure 6).

There are four recorded cemeteries within records check area. The closest is located 695 m (2,280.2 ft) north of the project area (Figure 5).

The 1904 and 1906 historic 15-minute Mason, OH, topographic maps show no structures within the project area. However, there is a structure 145 m (475.7 ft) south of the northern part of the project area along Yankee Road (Figure 7). By the 1955 7.5-minute Trenton, OH, map, the 1906 structure is represented as an outbuilding and a new house is represented south of that structure. The 1955–1987 series of 7.5-minute Trenton, OH, topographic maps display a steady increase of new structures along Yankee Road and in the records review area (Figures 2 and 8–11). Additionally, the 1955 Mason, Monroe, and Glendale, OH, 7.5-minute topographic maps do not have I-75 depicted. The interstate appears on the 1965 editions of those maps. The series of maps show consistent growth in the area with new roads and structures added on each new edition. Examination of Google Earth imagery from 1994 shows extensive development in the area including the construction of the commuter parking lot at the southern end of the project area and the construction of SR 129 and interchange with Cincinnati-Dayton Road south of the project area.

No additional cultural resources work is recommended for this project.

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**4/16/2018 12:31:00 PM**

**in**

**Case No(s). 18-0498-GA-BNR**

Summary: Application Construction Notice for the Line A000B Natural Gas Pipeline Replacement Project electronically filed by Ms. Emily Olive on behalf of Duke Energy Ohio and D'Ascenzo, Rocco O. Mr. and Kingery, Jeanne W. Ms.