DUKE ENERGY.

155 East Broad Street
20th Floor
Columbus, Ohio, 43215

o: 614-222-1330
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August 22, 2016

Chairman Asim Haque
Ohio Power Siting Board
180 East Broad Street, 11th Floor
Columbus, Ohio 43215

Re: PUCO Case No. 16-1759-EL-BLN, Request for Expedited Treatment: In the Matter of the Letter of Notification for the 5680- 138kV Todhunter to Nickel Rebuild Project

Dear Chairman Haque:

Attached please find a copy of the Letter of Notification (LON) for the 5680- 138kV Todhunter to Nickel Rebuild Project by Duke Energy Ohio, Inc. This filing and notice is in accordance with O.A.C chapter 4906-06.

Duke Energy Ohio, Inc. is seeking expedited treatment of this Letter of Notification due to timing requirements of impacted properties and the expected outage. Thus, the requested approval date is September 5, 2016. A copy of this filing will be submitted to the executive director or the executive director's designee. A copy will also be provided to the Board Staff via electronic message. The Company will also submit a check in the amount of $2,000 to the Treasurer, State of Ohio, for Fund 5610, for the expedited fees.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Jeanne W. Kingery
Associate General Counsel

Cc: Patrick Donlon
Raymond Strom
John Wittis
Robert Holderbaum

LETTER OF NOTIFICATION FOR THE

5680 - 138kV TODHUNTER TO NICKEL REBUILD

PUCO Case No. 16-1759-EL-BLN

Submitted to:

The Ohio Power Siting Board

Pursuant to OAC 4906-06

Submitted by:

Duke Energy Ohio, Inc.

8/22/2016

Letter of Notification

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

4906-06-05 ACCELERATED APPLICATION REQUIREMENTS

4906-6-05 (B): General Information

4906-6-05 (B)(1) Name, Reference Number, Brief Description, and Letter of Notification Requirement

Name of Project: Duke Energy 5680-138kV Todhunter to Nickel

2016 LTFR Reference: The Project was included in the Long-Term Forecast Report filed with the Public Utilities Commission of Ohio, Case No. 16-588-EL-FOR, pg. 57.

Brief Description of the Project:

Duke Energy proposes to remove and replace approximately 3.35 miles of 138 kV transmission line between the existing Todhunter Substation to the Nickel Substation, located in City of Monroe, Butler and Warren County, Ohio. The proposed project area consists of approximately 3.35 miles of existing 90-foot wide Duke Energy transmission line corridor Right-Of-Way (ROW), and includes the replacement of twenty nine (29) structures. The Project begins at Duke Energy's Todhunter Station located south of Todhunter Road and west of Wicklow Lane Butler County, OH (39.454930, -84.376347) and terminates at Duke Energy's Nickel Station, Warren County, OH (39.426871, -84.426871).

Letter of Notification Requirement:

This project qualifies as a Letter of Notification filing because it meets the requirements outlined in OAC 4906-1-01, Appendix A, item (2)(b). The rule reads *"Adding new circuits on existing structures designed for multiple circuit use, replacing conductors on existing structures with larger or bundled conductors, adding structures to an existing transmission line, or replacing structures with a different type of structure, for the distance of: (b) More than two miles."*

4906-6-05 (B)(2): Need for the Project

The purpose and need for the Todhunter to Nickel 138 kV Rebuild Project is to maintain and improve the quality of the electric service and reliability to the service area. This area includes, but is not limited to Butler and Warren County, Ohio. The existing 3.35 mile Todhunter to Nickel line provides 138 kV electric transmission service to residential and commercial/industrial facilities and serves as a pathway in the transmission grid between Middletown, Monroe, and surrounding areas. The line was originally constructed in the mid 1950's utilizing H-frame wood construction. Due to the increased customer load growth in Butler and Warren Counties, circuits will not be able to reliably operate for the base case of contingency condition which may result in customer load being disrupted. Moreover, to ensure the integrity of the transmission line, the existing wood structures will be upgraded to galvanized steel structures.

The rebuilt transmission line will continue to provide the service area with 138 kV transmission service, but will be rebuilt with upgraded conductor capacity to enable more efficient future voltage conversion and allow for support future load growth in the area. The Project will relieve loading and improve reliability on nearby circuits. The Project will also support the NTE Middletown Energy Center and, by order of its approval, will interconnect with the "Foster-Todhunter" line.

4906-6-05 (B)(3): Location of the Project Relative to Existing or Proposed Lines

The location of the project is depicted in Appendix A: Figures 1-2. Figure 1 shows the general project vicinity depicted on a USGS quadrangle topographic map. Figure 2 depicts the planned transmission line location, ecological resources in the project vicinity, and additional details depicted on an aerial imagery map. Appendix B depicts the Project location relative to the existing transmission lines.

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

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

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

Due to the proposed project being located entirely within existing Right-of-Way, Duke Energy has not developed a public information program for this Project. However, Duke Energy has worked closely with each property owner during the development of the Project. Duke Energy has mailed letters, via first class mail, to affected landowners,

tenants, contiguous owners, and anyone else Duke Energy determined may be affected by the Project.

Twenty nine structures will be removed and replaced within the existing transmission line easement. Property owners within 150 feet of those structures were sent a notification postcard in May, 2016 and a letter on June 13, 2016 notifying them of preconstruction activities and work scheduled for the Fall of 2016.

Meetings were held with local government and large customers in May, 2016 to discuss the potential impacts of the project to their business and/or community. Door hangers were placed on properties where vegetation and encroachment issues were identified by Duke Energy Work Management, Vegetation and Asset Protection to schedule one on one meetings to discuss the anticipated impacts to their property. Duke Energy is currently in the process of conducting one on one meetings with these landowners.

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

Construction is planned to begin September 6, 2016, upon approval of this LON. The Project is anticipated to be completed and in-service by December 31, 2016.

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

Figures 1 and 2 depict the general location of the Project. Appendix A, Figure 1 shows the general project vicinity depicted on a USGS quadrangle topographic map. Appendix A, Figure 2 depicts the planned transmission line location, ecological resources in the project vicinity, and additional details depicted on an aerial imagery map. Appendix B depicts the Project location relative to the existing transmission lines.

4906-6-05 (B)(8): Property Owner List

The proposed 5680 138 kV Todhunter to Nickel Rebuild is located within existing ROW easements that were obtained Duke Energy. Twenty nine (29) structures will be removed and replaced within the existing transmission line easement. Property owners have been notified as outlined in this response [Part 4906-6-05 (B)(5)]

4906-6-05 (B)(9): TECHNICAL FEATURES OF THE PROJECT

The Project involves the installation of approximately 19,000 feet (3.35 miles) of 138 kV single circuit, electrical transmission line. The proposed transmission line will involve installing four (4) galvanized steel self-supporting deadends and twenty-five (25) galvanized steel H-frame pole single circuit structures within existing Duke Energy right-of way. Structure diagrams are provided in Appendix B.

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

Voltage:	138kV
Structure Type:	Four (4) Galvanized Steel Self-Supporting Deadends, Twenty five (25) Galvanized Steel H-frames
Conductors:	Three (3) 954 kcmil ACSR 45/7 "RAIL"
Static Wire:	One (1) 7#8 Alumoweld and One (1) OPGW (optical ground wire) AC99-699-27
Insulators:	138kV Polymer post insulators and Porcelain suspension insulators

Right-of-Way/Land Requirements: Duke Energy owns the easements on which the transmission lines will be constructed

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

Calculations of electric and magnetic field strengths are being finalized. This Letter of Notification will be amended to add the required discussion.

4906-6-05 (B)(9)(b)(i): Calculated Electric and Magnetic Fields Strength Levels

Three load conditions were examined: (a) normal maximum loading, (b) emergency line loading, and (c) winter normal conductor rating. Normal maximum loading represents the peak flow expected with all system facilities in service; daily/hourly flows fluctuate below this level. Emergency loading is the maximum current flow during unusual (contingency) conditions, which exist only for short periods of time. Winter normal (WN) conductor rating represents the maximum current flow that a line, including its terminal equipment, can carry during winter conditions.

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

EMF CALCULATIONS	
Condition	Line Loading (Amperes)
(a) Normal Maximum Loading	500
(b) Emergency Line loading	1263
(c) Winter Normal Conductor Rating	1585

4906-6-05 (B)(9)(b)(ii): Alternative Design Consideration for Electric and Magnetic Fields

The proposed project is a rebuild of an existing transmission line within the existing transmission ROW. Other alternative routes were not considered because the Project was able to take advantage of existing rights and avoid further impacts.

4906-6-05 (B)(9)(c): Estimated Cost

The estimated cost for the proposed 5860 Todhunter to Nickel 138 kV electric transmission rebuild project is approximately $3,598,258.00.

4906-6-05 (B)(10): SOCIAL AND ECOLOGICAL IMPACTS

4906-6-05 (B)(10)(a): Land Uses

The project is located in the City of Monroe, Butler and Warren Counties, Ohio approximately 35 miles north of Cincinnati. The City of Monroe, which covers 15.89 square miles, contained a population of 14,409 people based on the 2014 census data. The land use immediately surrounding the Project area is predominantly developed residential, commercial, and industrial property.

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

Agricultural land vegetation assemblage is not located within the Project disturbance area. No properties within the Project area are registered as an agricultural district as defined by Chapter 929 of the Ohio Revised Code.

4906-6-05 (B)(10)(c): Archaeological or Cultural Resources

The Ohio History Connection, Ohio's Historic Preservation Office (OHPO), online mapping system was consulted to identify previously recorded cultural resources within 1.6 km (1 mi) of the project area. The records check indicates that 3 cemeteries and 57 archaeological sites have been previously recorded in the Study Area (1-mile radius surrounding the Project Area). No National Register of Historic Places (NRHP) listed resources or previously recorded historic structures are located within the Study Area.

Archaeological site 33-Wa-0720 is the only previously identified archaeological site located in the Project area. The site is located in the eastern portion of the Project area in what is currently an industrial complex. This portion of the Project area had previously been surveyed for cultural resources by Gray and Pape, Inc. for the Cincinnati Crossings Project. The survey investigated approximately 162 hectares (400 acres) and 23 archaeological sites were identified. The current Project area bisects this previous survey area. In addition, this survey identified five archaeological sites within 82 meters (270

feet) of the current Project area (sites 33-Wa-0715 through 33-Wa-0719). All of these sites were determined ineligible for inclusion on the NRHP, and have subsequently been destroyed by construction.

One cultural resources survey was conducted in a small portion of the Project area by Wapora, Inc. for a proposed Texas Gas Transmission Corporation gas pipeline. No cultural resources were identified in or adjacent to the project area by this survey. Ten additional archaeological surveys have been conducted within the 1.6 km (1 mi) Study Area that do not intersect the project area. At this time, no cultural resource surveys have been conducted in a large portion of the Project area. Prior disturbances and previous cultural resources survey has occurred in approximately 30 percent of the eastern portion of the project area. The majority of the remainder of the project area is located in or adjacent to residential subdivisions and/or previously disturbed industrial complexes.

Given that the project involves only removal and replacement of existing and previously installed structures, requiring little to no new ground disturbance, it does not appear that further coordination with OHPO is necessary. The minimal impacts associated with tower replacement do not appear to warrant additional cultural resource surveys based on the proposed scope of work. Given that portions of the project area and surrounding 1-mile project radius have been surveyed with no NRHP eligible sites in the Study Area, combined with documented areas of prior ground disturbance and the scope of work containing little to no new earth disturbances; impacts to cultural resources as a result of this replacement project are not likely.

4906-6-05 (B)(10)(d): Local, State, and Federal Requirements

A Notice of Intent (NOI) will be filed with the Ohio Environmental Protection Agency (Ohio EPA) for authorization of an NPDES General Permit for "Stormwater Discharges Associated with Construction Activity." The NPDES General Permit number is OHC000003.

A Roadway Usage Permit will be filed with the Ohio Department of Transportation (Ohio DOT) District 8 for authorization to access structures BT80-141-684 through BT80-144-687 from SR 63 (Appendix A, Figure 2.06). These permits are established by the Ohio Revised Code, Chapter 5515.

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

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

Several sources of information were consulted to further define the potential habitat of listed species that occur within the County of the Project. Appendix A, Table 1, contains

list a of the Rare, Threatened and Endangered (RTE) species known to occur within Butler and Warren Counties and their potential to occur within the Study Area based on their habitat requirements and observations during the field survey.

Coordination with the U.S. Fish and Wildlife Service (USFWS) was initiated August 19, 2016. Correspondence is anticipated from the USFWS in the next 30 days. Correspondence from the ODNR Division of Wildlife regarding RTE located within a ½-mile of the Study Area was received May 9, 2016 (See Appendix E: *Regulated Waters Delineation Report, Appendix D*). The correspondence from ODNR indicated that there are no verified records of federally listed endangered, threatened, or candidate species, or their habitats existing within the project site or vicinity.

The entire Project Area was field surveyed by Cardno, Inc. (Cardno) as part of contracted services to assess ecological impacts. This included habitat assessments to identify RTE species and their habitat, specifically Indiana Bat and Northern Long-eared Bat roost trees. Based on Cardno's field inspection, the Project Study Area consisted of actively maintained right-of-way, residential turf, scrub-shrub, and emergent wetland vegetation assemblages. Secondary growth forest was identified outside the maintained right-of-way but will not be impacted as a result of the proposed project. Ornamental residential trees were located throughout the survey area and may be impacted as a result of the proposed project. No trees with characteristic habitat indicators of primary maternity roost trees were identified.

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

As a part of the investigation, Duke Energy hired Cardno to conduct an investigation for areas of ecological concern. As a part of Cardno's investigation, a request was submitted to the ODNR Ohio Natural Heritage Program on July 1, 2016, to research the presence of any unique ecological sites, geological features, animal assemblages, scenic rivers state wildlife area, nature preserves, parks or forest, national wildlife refuges, or other protected areas within one (1) mile of the Project area using the ODNR natural Heritage Database. Additionally, a request was submitted to the U.S. Fish and Wildlife Service on August 19, 2016 regarding the potential for occurrence of rare, threatened, and endangered species within the Project area. A copy of ODNR's Response and USFWS request letter are included in Appendix E: *Regulated Waters Delineation Report, Appendix D.*

The ODNR response on July 6, 2016 indicated that there are no unique ecological sites, geological features, animal assemblages, scenic rivers state wildlife area, nature preserves, parks or forest, national wildlife refuges, or other protected areas within one (1) mile of the Project area.

As a part of the field investigation and ecological assessment, Cardno conducted a wetland delineation and stream assessment of the Project area. Cardno's investigation included approximately 3.68 mile long by 150 foot wide ROW (65.5 acres) study area around the proposed centerline, access roads, and additional workspace areas. The

Study Area was over-surveyed to account for potential reconfigurations compared to the final Project Area. During the investigation, Cardno identified fourteen (14) potentially regulated waters within the Project's Study Area. This includes eight emergent wetlands (Wetland 1-Wetland 8), one USGS-named perennial stream (Stream 1, Millers Creek), one unnamed USGS-intermittent stream (Stream 3), one unnamed ephemeral stream (Stream 2), as well as three excavated ponds (Pond 1 - Pond 3). See Appendix A, Figures 2.1-2.10.

The proposed construction access plan as shown in Appendix A, Figure 2, was developed by Cardno to avoid and/or minimize disturbance to all streams and wetlands. No impacts to regulated waters or RTE habitat are anticipated by the Project.

As a part of the investigation Cardno identified 100 year floodplains using the FEMA National Flood Hazard Layer within the Project Area. Appendix A, Figure 2 depicts the location of the 100 year floodplains in relation to the Project Area. No changes in flood elevations are anticipated in the identified floodplain. Confirmation was received from the designated Floodplain Administrator for the City of Monroe, its Public Works & Utilities Director, Daniel J. Arthur stating that the project is exempt from floodplain permit requirements due to the limited project footprint (See Appendix D)

4906-6-05 (B)(10)(g): Other Information

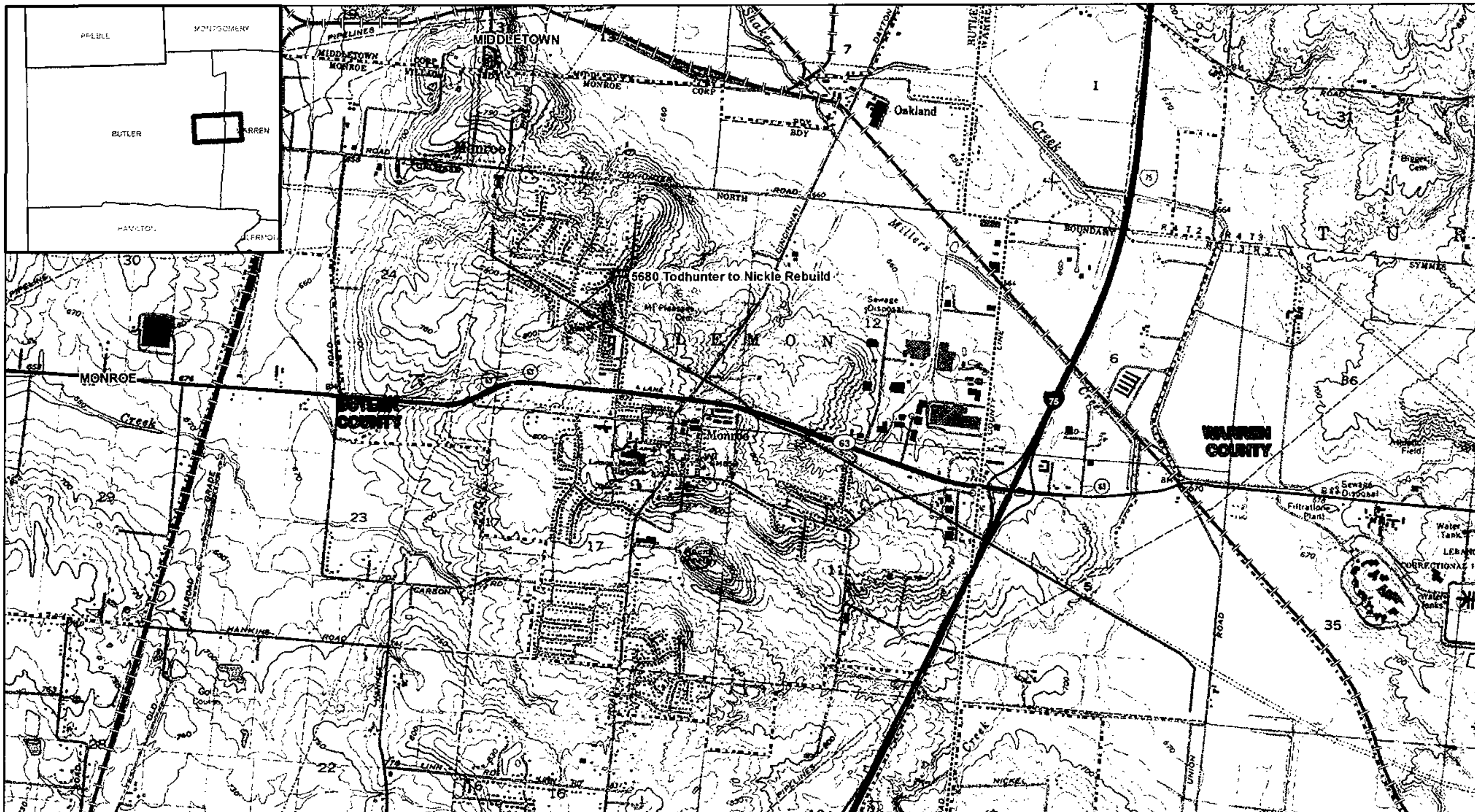
To the best of Duke Energy's knowledge, no unusual conditions exist that would result in environmental, social, health, or safety impacts. Construction and operation of the proposed Project will meet all applicable safety standards established by the Occupational Safety and Health Administration, and will be in accordance with the requirements specified in the latest revision of the National Electric Safety Code as adopted by the Public Utilities Commission of Ohio. The Stormwater Pollution Prevention Plan (SWPPP), depicting the project's access plan, will be provided to the OPSB prior to construction.

4906-6-07: Document of Letter of Notification Transmittal and Availability for Public Review

Copies of this Letter of Notification have been sent to the office of Lemon Township Trustees, Turtle Creek Township Trustees, the City of Monroe Mayors Office, the City of Middletown City Mayors Office, Warren County Commissioners and Butler County Commissioners (Appendix C). A newspaper notice will be provided in the Cincinnati Enquirer within 7 days of filing this application.

Appendix A

Figures and Tables



REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: MONROE, OHIO. OBTAINED VIA ESRI USA TOPO, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSED 05/2016.

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FIGURE 1

OPSB LETTER NOTIFICATION
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
PROJECT VICINITY MAP

DRAWN BY: TM
CHECKED: CJ
DATE: 8/22/2016
APPROVED: JT

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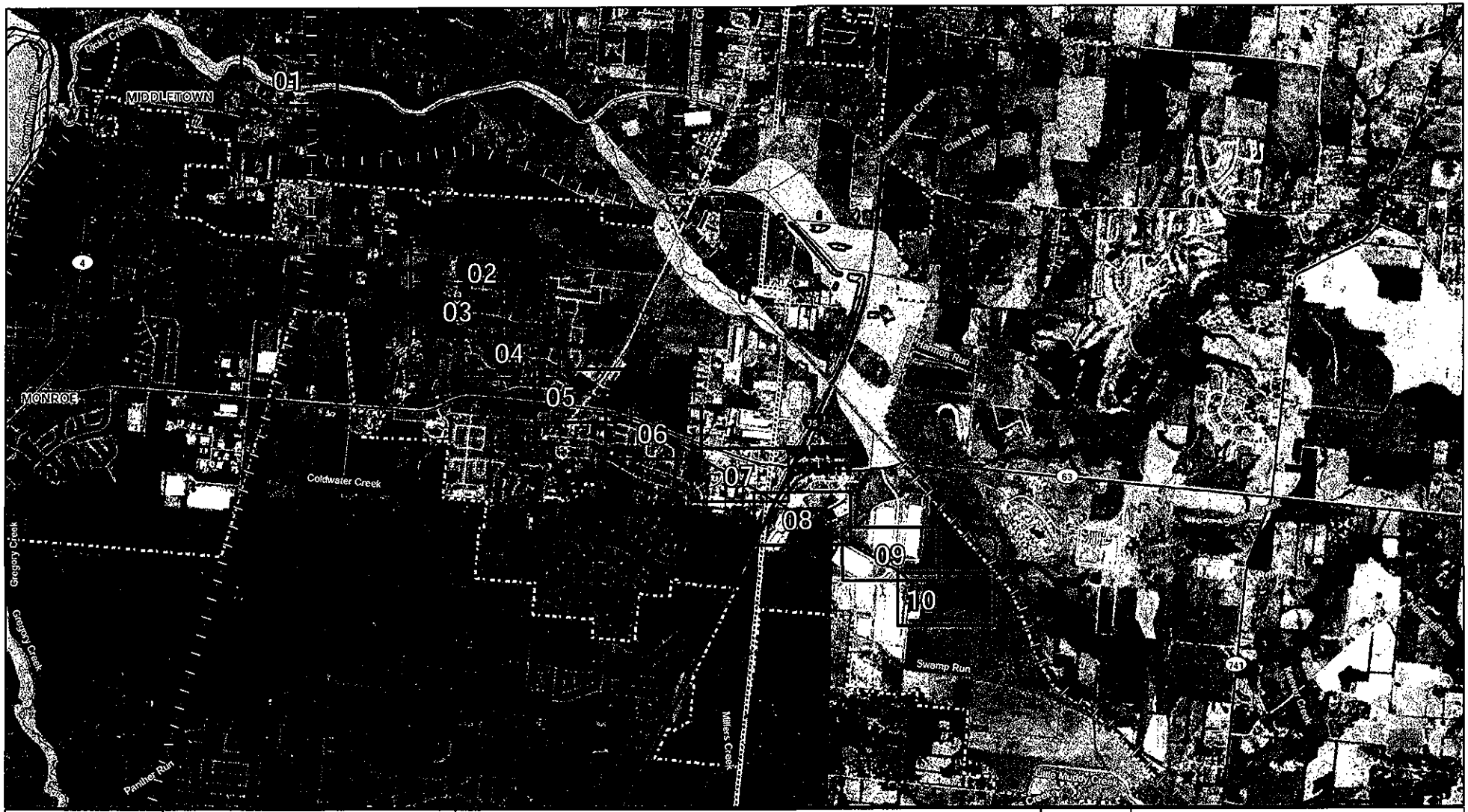

Project Location

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 1,500 3,000 Feet

- Project Centerline
- Railroad
- NWI Wetland
- Interstate
- NHD Flowline
- County Boundary
- US Highway
- 100-Year Floodplain
- Municipal Boundary
- State Highway
- Floodway
- Sheet Index

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FIGURE: 2

OPSB LETTER NOTIFICATION
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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SHEET INDEX

01 02 03 04 05 06 07 08 09 10

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Existing Culvert
- Temporary Construction Entrance
- Proposed Access
- Restricted Access
- Parcel Boundary
- Local Road
- Study Area
- Surface Drainage
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Railroad
- 2-ft Contour
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municipal Boundary
- Parcel Boundary

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FIGURE: 2.01

OPSB LETTER NOTIFICATION
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS PLAN

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N

0 50 100 200 Feet

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FIGURE: 2.02

OPSB LETTER NOTIFICATION
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS PLAN

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FIGURE: 2.03

OPSB LETTER NOTIFICATION
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DUKE ENERGY
ENVIRONMENTAL ACCESS PLAN

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FIGURE: 2.04

OPSB LETTER NOTIFICATION
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ENVIRONMENTAL ACCESS PLAN

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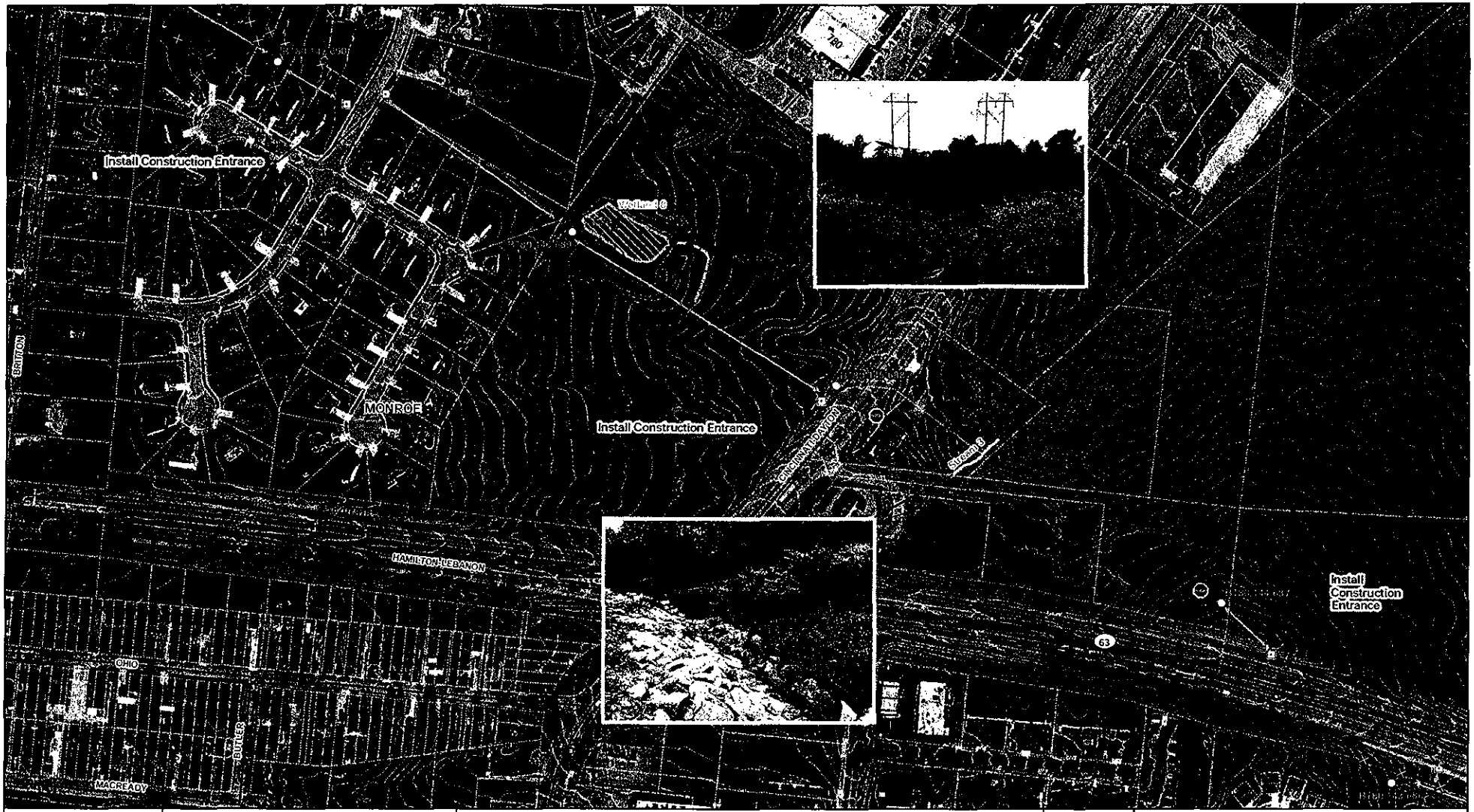

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FIGURE: 2.05

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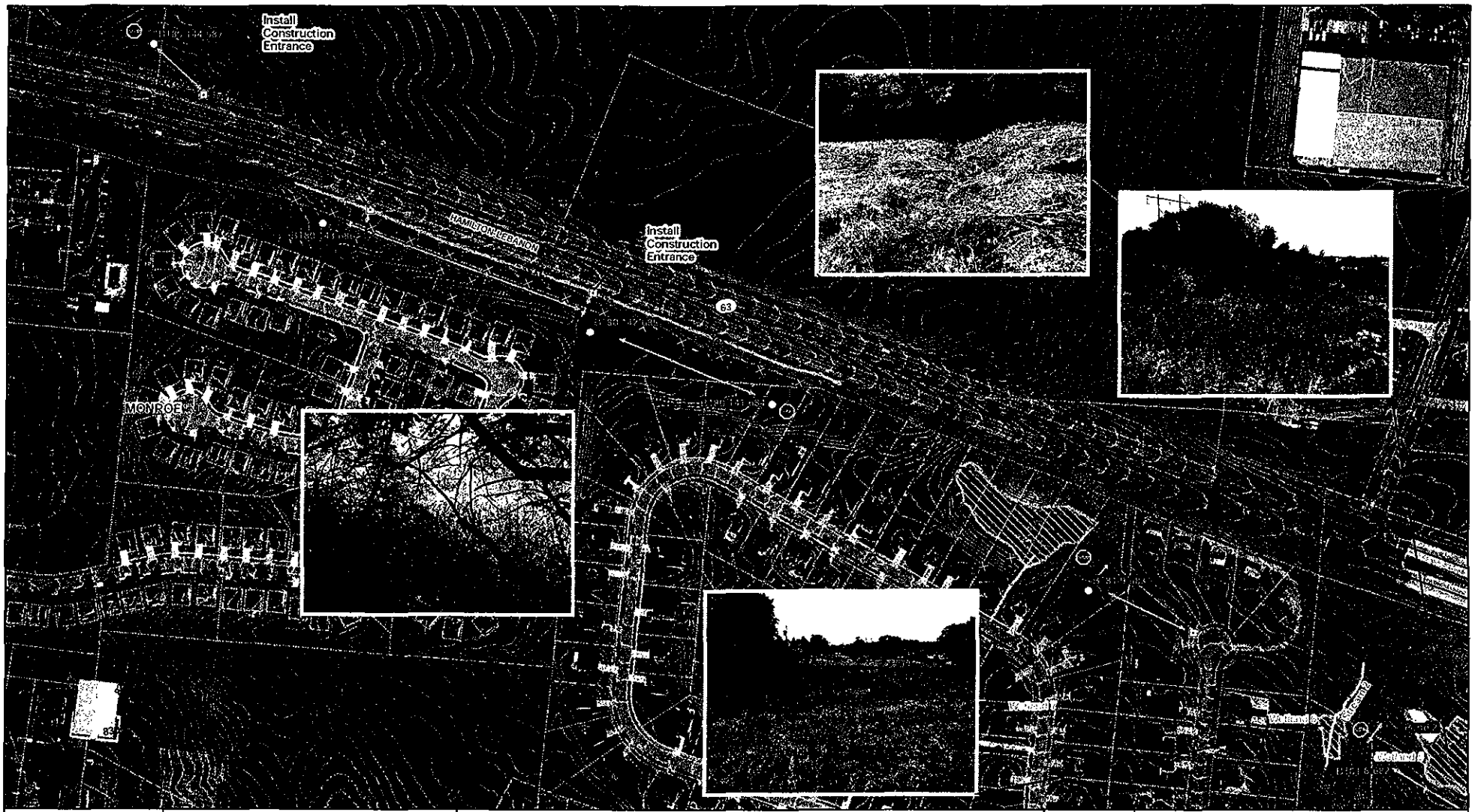

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FIGURE: 2.06

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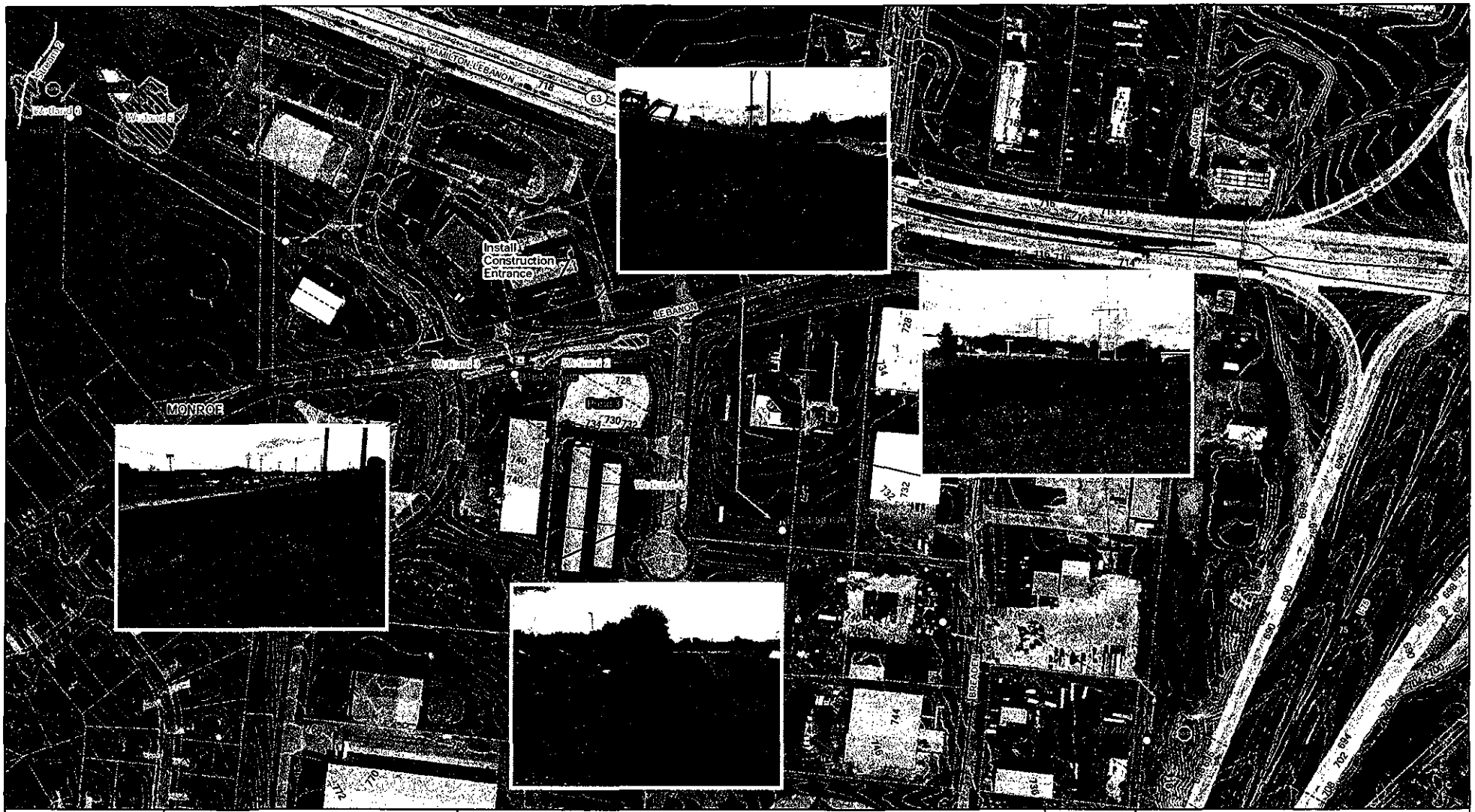

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- Proposed Access
- Restricted Access
- Parcel Boundary
- Local Road
- Study Area
- Surface Drainage
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Railroad
- 2-ft Contour
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municipal Boundary
- Parcel Boundary

DUKE ENERGY.

Cardno

FIGURE: 2.07

OPSB LETTER NOTIFICATION
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS PLAN

DRAWN BY: TM DATE: 8/22/2016
CHECKED: CJ APPROVED: JT

R:\Projects\15\156\156720M_DukeEnergy9193\M23_SOW11_TodhunterToNickel_PO9207\GIS\MXD\OPSB\OPSB2_Access_set.mxd

SHEET INDEX

01 02 03 04 05 06 07 08 09 10

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Existing Culvert
- Temporary Construction Entrance
- Proposed Access
- Restricted Access
- Parcel Boundary
- Local Road
- Study Area
- Surface Drainage
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Railroad
- 2-ft Contour
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municipal Boundary
- Parcel Boundary

DUKE ENERGY.

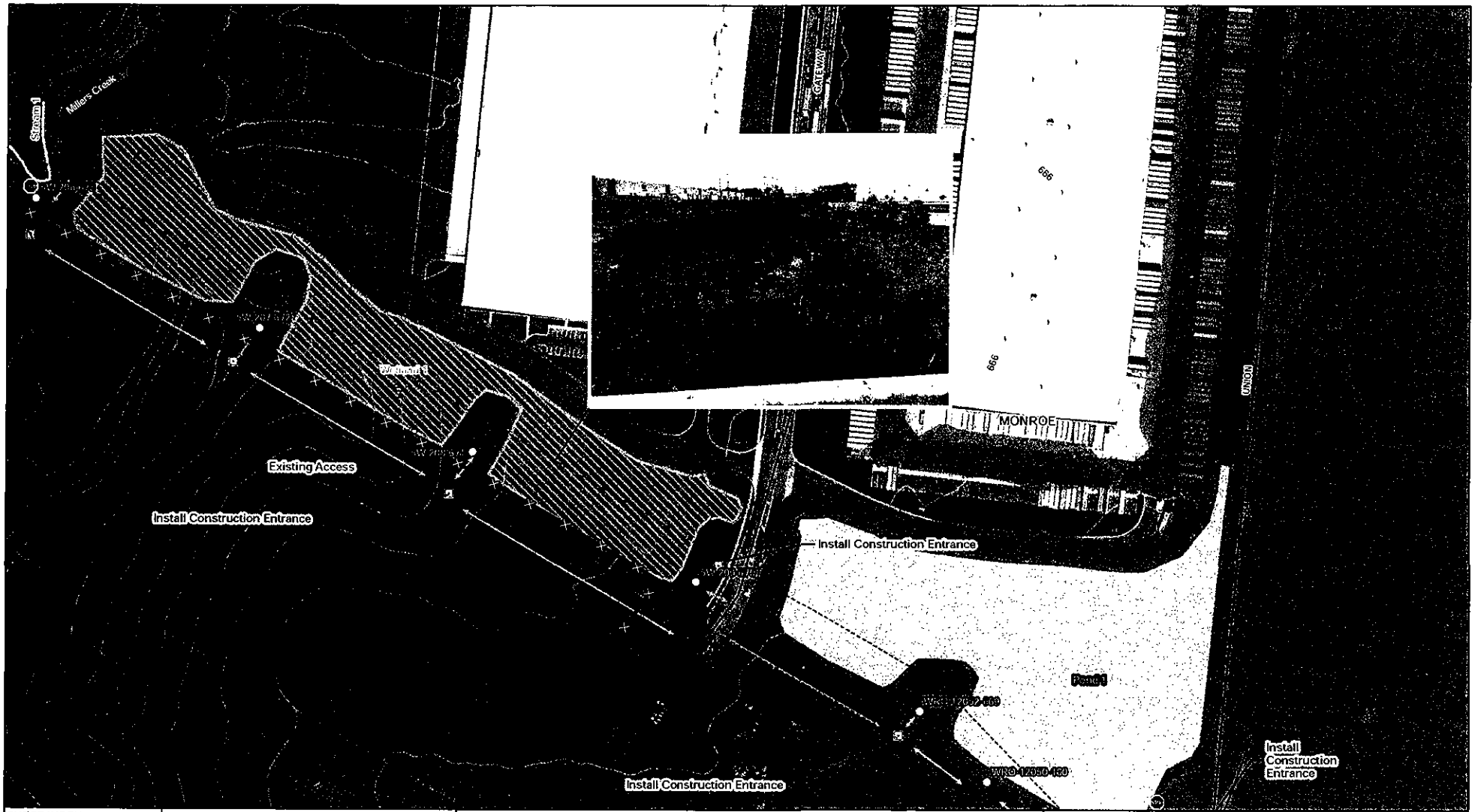
Cardno

FIGURE: 2.08

OPSB LETTER NOTIFICATION
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS PLAN

DRAWN BY: TM DATE: 8/22/2016
CHECKED: CJ APPROVED: JT

R:\Projects\151\156\156720M_DukeEnergy9193\M23_SOW11_TodhuntertoNickel_PO9207\GIS\MXD\OPSB\OPSB2_Access_set.mxd



SHEET INDEX

01 02 03 04 05 06 07 08 09 10

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Existing Culvert
- Temporary Construction Entrance
- Proposed Access
- Restricted Access
- Parcel Boundary
- Local Road
- Study Area
- Surface Drainage
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Railroad
- 2-ft Contour
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municipal Boundary
- Parcel Boundary

DUKE ENERGY.

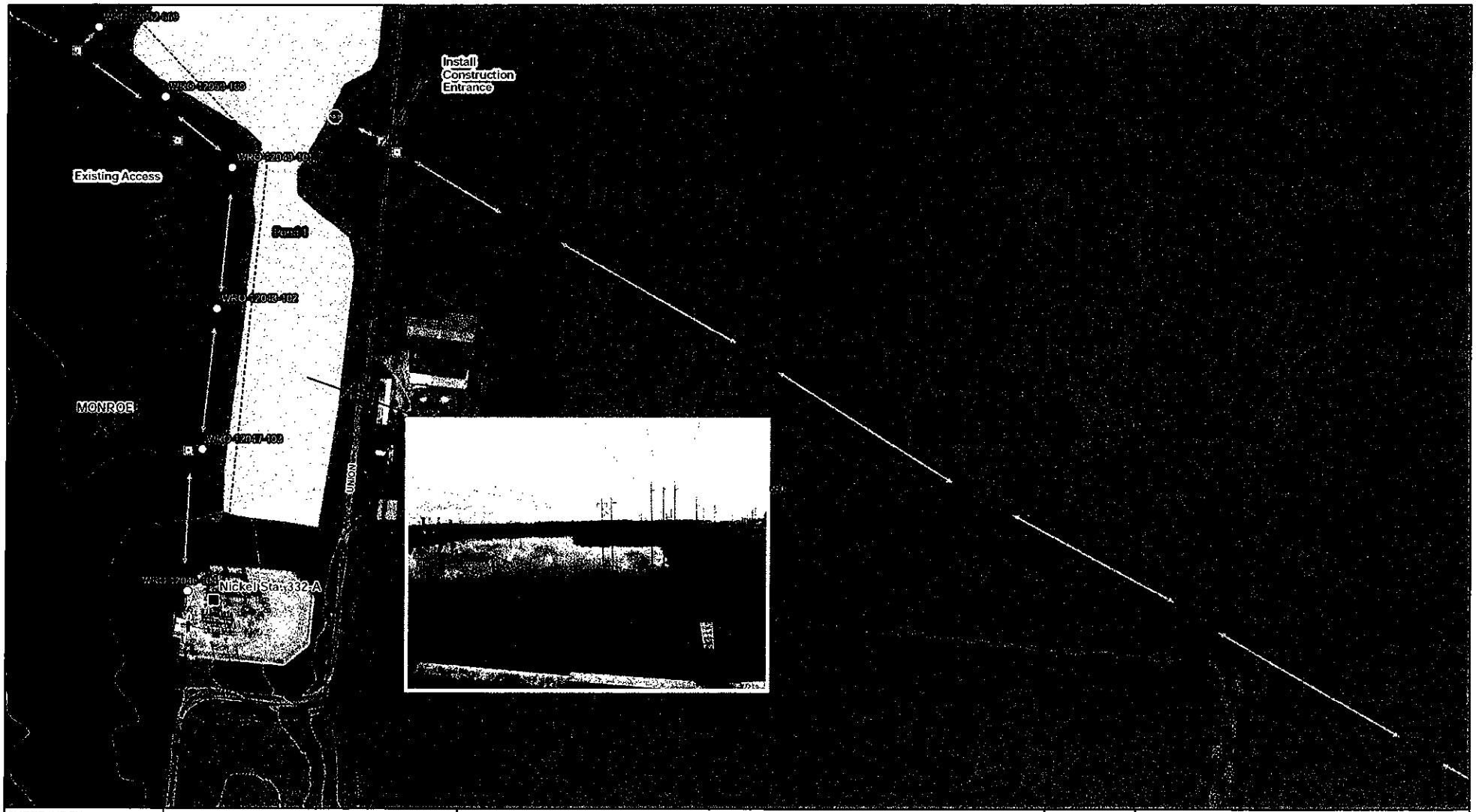
Cardno

FIGURE: 2.09

OPSB LETTER NOTIFICATION
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS PLAN

DRAWN BY: TM DATE: 8/22/2016
CHECKED: CJ APPROVED: JT

R:\Projects\15\156\156720M_DukeEnergy9193\M23_SOW11_TodhunterToNickel_PO9207\GIS\MXD\OPSB\OP5B2_Access_set.mxd



SHEET INDEX

01 02 03 04 05 06 07 08 09 10

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Existing Culvert
- Temporary Construction Entrance
- Proposed Access
- Restricted Access
- Parcel Boundary
- Local Road
- Study Area
- Surface Drainage
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Railroad
- 2-ft Contour
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municipal Boundary
- Parcel Boundary

DUKE ENERGY.

Cardno

FIGURE: 2.10

OPSB LETTER NOTIFICATION
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS PLAN

DRAWN BY: TM DATE: 8/22/2016
CHECKED: CJ APPROVED: JT

R:\Projects\15\156\156720M_DukeEnergy9193\M23_SOW11_TodhuntertoNickel_PO9207\GIS\MXD\OPSB\OPSB2_Access_set.mxd

SPECIES	COMMON NAME	STATE STATUS[1]	FEDERAL STATUS[2]	HABITAT[3]	BREEDING PERIOD[3]	PROBABILITY OF OCCURENCE[4]
Butler County						
MUSSEL						
Villosa fabalis	Rayed Bean	SE	LE	Smaller, headwater creeks, but they are sometimes found in large rivers. It prefers gravel or sand substrates, and is often found in and around roots of aquatic vegetation.	July to mid-August	Low
MAMMAL						
Myotis sodalis	Indiana Bat or Social Myotis	SE	LE	Wooded and Semi wooded areas, mainly along streams. Maternity colonies are around hollow trees.	August-October	Low
Myotis septentrionalis	Northern Long-eared Bat	ST	LT	Wooded and Semi wooded areas, mainly along streams. Maternity colonies are around hollow trees.	August-October	Low
Warren County						
MUSSEL						
Villosa fabalis	Rayed Bean	SE	LE	Smaller, headwater creeks, but they are sometimes found in large rivers. It prefers gravel or sand substrates, and is often found in and around roots of aquatic vegetation.	July to mid-August	Low
MAMMAL						
Myotis sodalis	Indiana Bat or Social Myotis	SE	LE	Wooded and Semi wooded areas, mainly along streams. Maternity colonies are around hollow trees.	August-October	Low
Myotis septentrionalis	Northern Long-eared Bat	ST	LT	Wooded and Semi wooded areas, mainly along streams. Maternity colonies are around hollow trees.	August-October	Low
REPTILE						
Sistrurus catenatus	Eastern Massasauga	SE	LPT	Wet areas including wet prairies, marshes and low areas along rivers and lakes. In many areas massasaugas also use adjacent uplands during part of the year. They often hibernate in crayfish burrows but may also be found under logs and tree roots or in small mammal burrows.	Late Summer	Low
PLANT						
Trifolium stoloniferum	Running buffalo clover	SE	LE	Partially shaded woodlots, mowed areas (lawns, parks, cemeteries), and along streams and trails in area that have rich soil and experience periodic disturbance.	n/a	Low

Yellow highlight indicates species has been previously documented within 5 mile of Survey Area (ODNR-DOW: Natural Heritage Database)

1. STATE STATUS - X = extirpated, E = endangered, T = threatened, R = rare, SSC = special concern, WL = watch list, SG = significant, ** = no status but rarity warrants concern
Ohio Department of Natural Resources, Division of Wildlife Website - http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/publications/information/pub356.pdf (May, 2016).

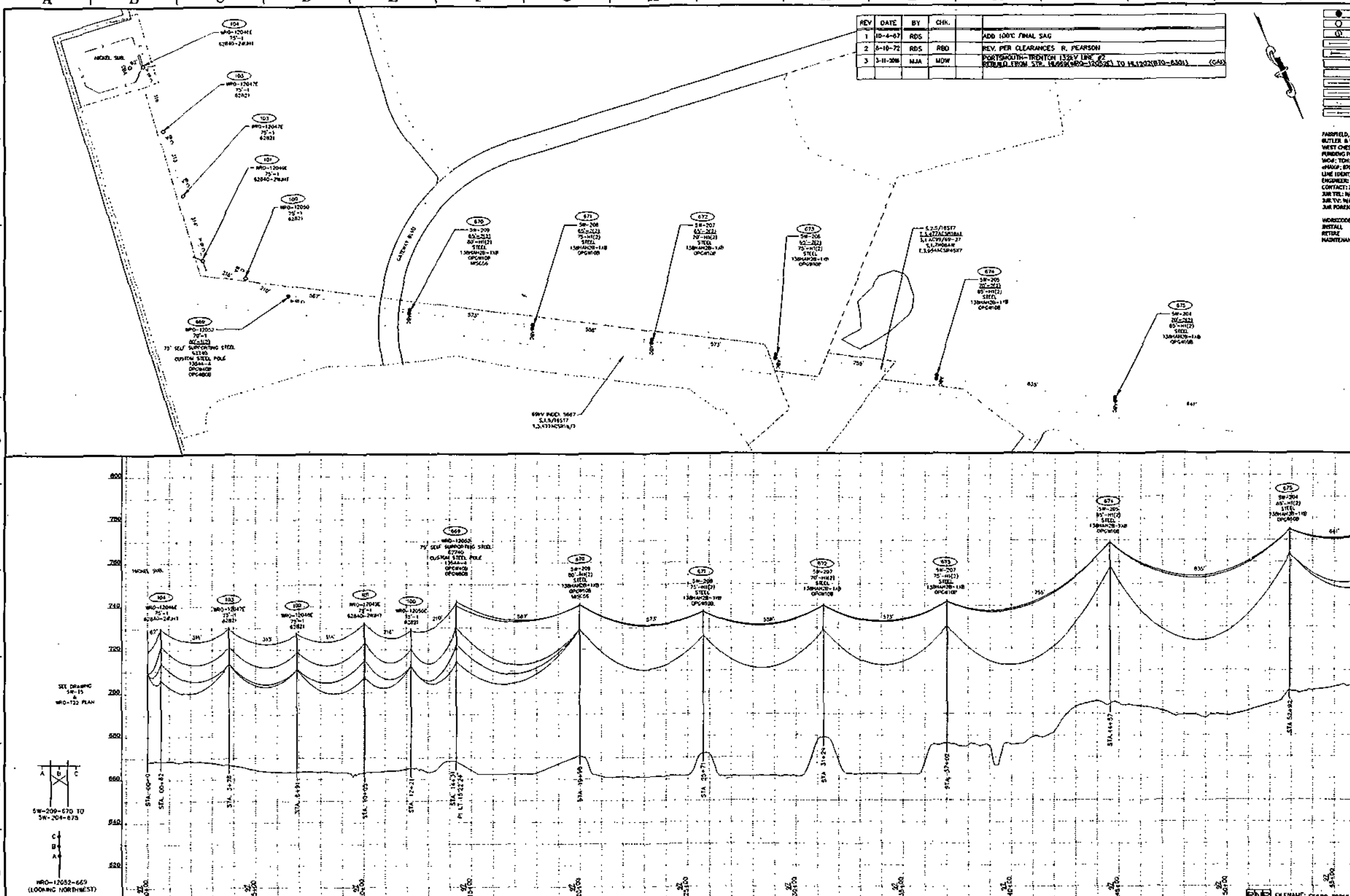
2. FEDERAL STATUS - E = endangered, T = threatened, R = rare, LELT = different listing for specific ranges or species, PE = proposed endangered , PT = proposed threatened, e/sa – appearance similar to a listed endanger species, **= not listed
United States Fish and Wildlife Service, County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species - http://www.fws.gov/midwest/endangered/lists/ohio-cty.html (May, 2016).

3. Habitats and Breeding Periods described by:
   a. NatureServe: An online encyclopedia of life [web application].2000. Version 1.1 Arlington, Virginia, USA: Association for Biodiversity information. Available: http://www.natureserve.org/ (Accessed May 26, 2016).
   b. United States Fish and Wildlife Service Rayed Bean Fact Sheet - http://www.fws.gov/midwest/endangered/clams/rayedbean/RayedBeanFactSheet.html (May, 2016).
   c. United States Fish and Wildlife Service Indiana Bat Fact Sheet - http://www.fws.gov/midwest/endangered/mammals/inba/index.html (May, 2016).
   d. United States Fish and Wildlife Service Northern Long-eared Bat Fact Sheet - http://www.fws.gov/midwest/endangered/mammals/nleb/index.html (May, 2016).
   e. United States Fish and Wildlife Service Eastern Massasauga Fact Sheet - http://www.fws.gov/midwest/endangered/mammals/inba/index.html (July, 2016).
   f. United States Fish and Wildlife Service Running buffalo clover Fact Sheet - http://www.fws.gov/midwest/endangered/mammals/nleb/index.html (July, 2016).

4. Likelihood of occurrence: None, Low, Moderate, or High based on best available data and selective field observations.

Appendix B

Proposed Site Plans



REV	DATE	BY	CHK.		
1	10-4-67	RDS			ADD 100°C FINAL SAG
2	6-10-72	RDS	RBD		REV. PER CLEARANCES R. PEARSON
3	3-11-2016	MJA	MDW		PORTSMOUTH-TRENTON 138kV LINE #2 REBUILD FROM STR. HL669(WRO-12052E) TO HL1202(BTO-6301) (CAS)

NEW POLE
EXISTING POLE
POLE TO BE REMOVED
NEW ANCHOR
EXISTING ANCHOR
NEW TRANSMISSION LINE
EXISTING OH TRANSMISSION LINE
EXISTING 1φ DISTRIBUTION LINE
EXISTING 3φ DISTRIBUTION LINE
PROPERTY LINE
RIGHT-OF-WAY LINE

FAIRFIELD, BRECON, TODHUNTER DISTRICT
BUTLER & WARREN COUNTY
WEST CHESTER, DEERFIELD, TURTLECREEK
FUNDING PROJECT NUMBER: AMOH1013T
WO#: TOH1072
eMAX#: 8700806
LINE IDENT/FEEDER: F3163
ENGINEER: GAI CONSULTANTS, INC.
CONTACT: JOHN ROGERS (513) 287-5373
JUR TEL: N/A
JUR TV: N/A
JUR FOREIGN UTILITY: N/A

WORKCODES:
INSTALL TOH1072_I
RETIRE TOH1072_R
MAINTENANCE TOH1072_X

SHIELD WIRE – 7NO8AW
(DISPLAYED @ -20°F, INITIAL SAG)

FROM STR.	TO STR.	INSTALL QTY	MAX TENSION NESC HEAVY (LBS)
HL669	HL676	1	3,700

TRANSMISSION WIRE – 954ACSR45X7
(DISPLAYED @ 248°F, MAX SAG)

FROM STR.	TO STR.	INSTALL QTY	MAX TENSION NESC HEAVY (LBS)
HL669	HL676	3	10,000

SHIELD WIRE – OPGW AC99-699-27
(DISPLAYED @ -20°F, INITIAL SAG)

FROM STR.	TO STR.	INSTALL QTY	MAX TENSION NESC HEAVY (LBS)
HL669	HL676	1	5,500

FOR CONSTRUCTION
3/11/16

gai consultants

SEAL

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DRAFTED BY: MJA
DESIGNED/CHECKED BY: MJA
ENGINEER: MDW
DETAIL PROJECT NO: TOH1072
WM/FUNDING PROJECT: AMOH1013T
DATE ISSUED: 3/11/16

☐ PRELIMINARY
☐ APPROVAL
☐ AS BUILT
DATE ______
NAME ______

DUKE ENERGY.

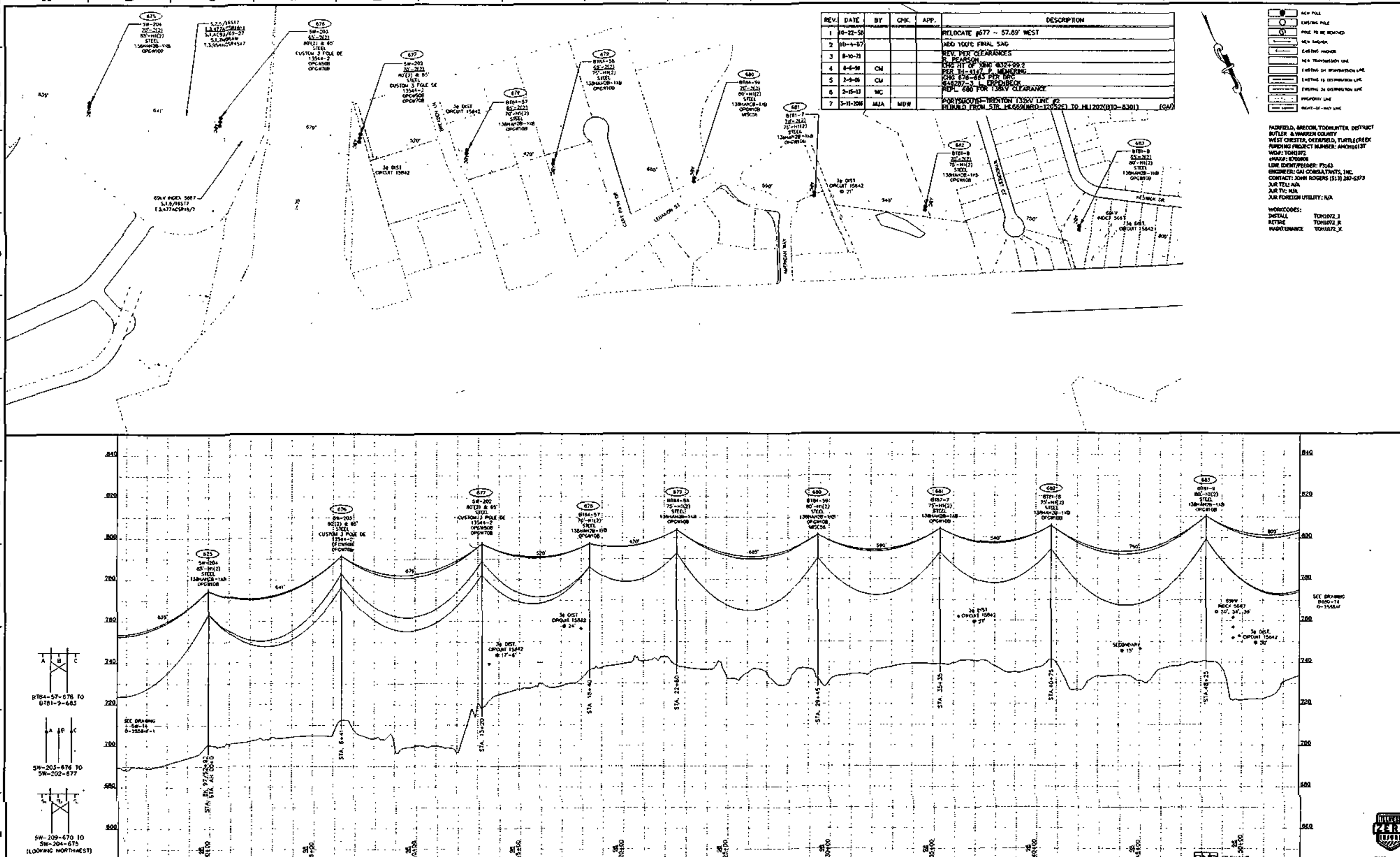
PNP FILENAME: F5680 TODHUNTER – PLAN & PROFILE.DWG

TITLE: PLAN AND PROFILE
PORTSMOUTH – TRENTON 138kV LINE #2
NICKEL TO TODHUNTER 138kV – INDEX #F5680

LOCATION: BUTLER & WARREN COUNTY, OHIO
NICKEL SUB TO HL675

HORIZ SCALE: 1"=200'
VERT SCALE: 1"=20'
SCALE FACTOR: NONE
STA NO:
REV: 3
SW-T4 0-25584F-1
SHEET 97 OF 105

10/19/2015 12:00



REV.	DATE	BY	CHK.	APP.	DESCRIPTION
1	10-22-58				RELOCATE #677 ~ 57.89' WEST
2	10-4-67				ADD 100°C FINAL SAG
3	8-10-71				REV. PER CLEARANCES R. PEARSON
4	8-6-98	CM			CHG HT OF XING @32+99.2 PER TH-4147 P. MEMERING
5	2-9-06	CM			CHG 676-683 PER DRG 646287-3 L. ERPENBECK
6	2-15-13	WC			REPL. 680 FOR 138KV CLEARANCE
7	3-11-2016	MJA	MDW		PORTSMOUTH-TRENTON 138KV LINE #2 REBUILD FROM STR. HL669(WRO-12052E) TO HL1202(BTO-8301) (GAI)

SHIELD WIRE – 7#8AW (DISPLAYED @ -20°F, INITIAL SAG)			
FROM STR.	TO STR.	INSTALL QTY.	MAX TENSION NESC HEAVY (LBS)
HL663	HL676	1	2,700
HL676	HL677	1	2,500
HL677	HL696	1	3,600

SHIELD WIRE – OPGW AC99-699-27 (DISPLAYED @ -20°F, INITIAL SAG)			
FROM STR.	TO STR.	INSTALL QTY.	MAX TENSION NESC HEAVY (LBS)
HL669	HL676	1	3,500
HL676	HL677	1	3,500
HL677	HL696	1	3,500

TRANSMISSION WIRE – 954ACSR45X7 (DISPLAYED @ 248°F, MAX SAG)			
FROM STR.	TO STR.	INSTALL QTY.	MAX TENSION NESC HEAVY (LBS)
HL669	HL676	3	10,000
HL676	HL677	3	10,000
HL677	HL696	3	10,000

FOR CONSTRUCTION
3/11/16

gai consultants

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DRAFTED BY: MJA
DESIGNED/CHECKED BY: MJA
ENGINEER: MDW
DETAIL PROJECT NO: TOH1072
BM/FUNDING PROJECT: AMOH1013T
DATE ISSUED: 3/11/16

☐ PRELIMINARY
☐ APPROVAL
☐ AS BUILT
DATE ______
NAME ______

DUKE ENERGY.

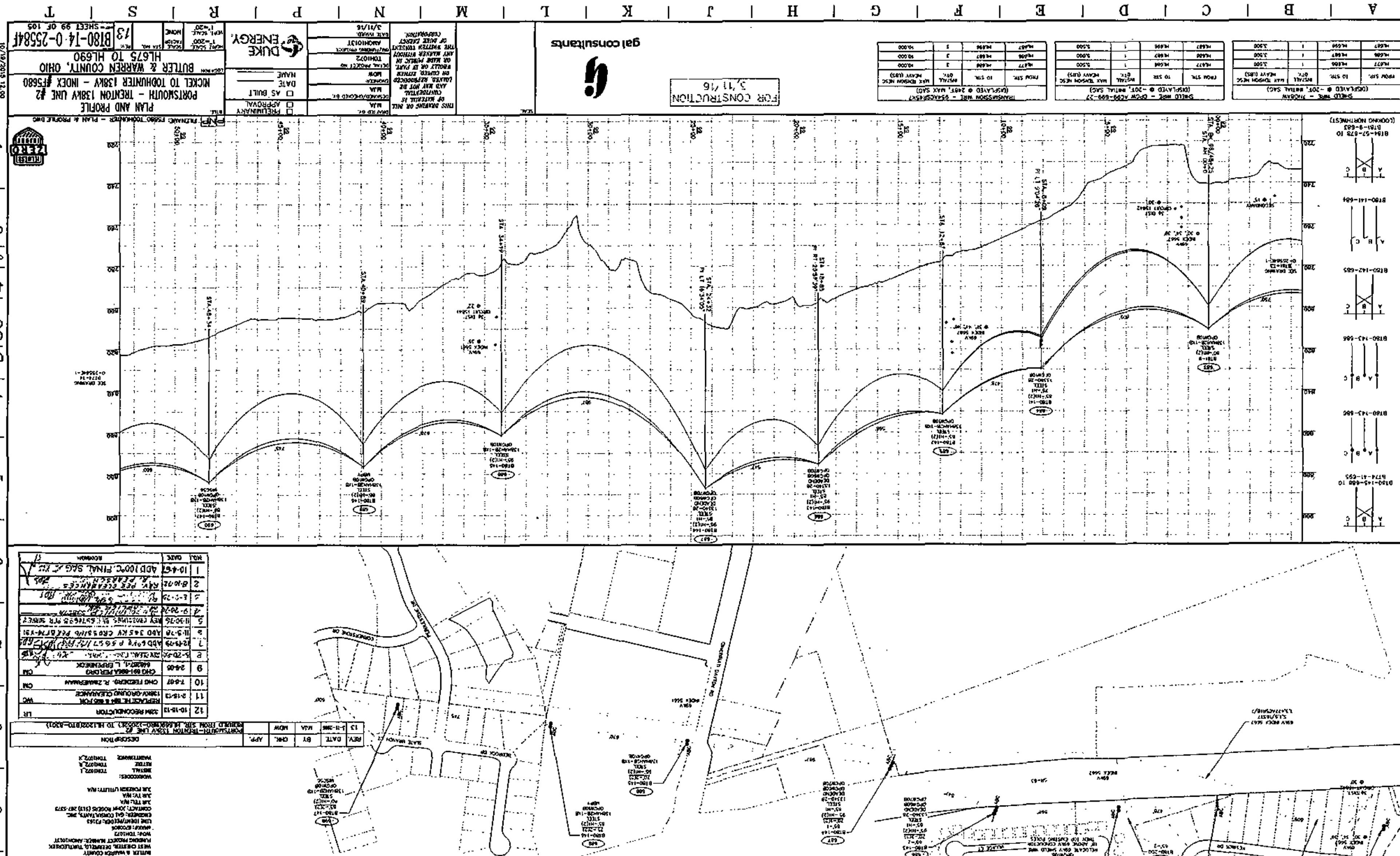
FILENAME: F5680 TODHUNTER – PLAN & PROFILE DWG

TITLE: PLAN AND PROFILE
PORTSMOUTH – TRENTON 138kV LINE #2
NICKEL TO TODHUNTER 138kV – INDEX #F5680

LOCATION: BUTLER & WARREN COUNTY, OHIO
HL675 TO HL683

HORIZ SCALE 1"=200' | VERT. SCALE 1"=20' | SCALE FACTOR NONE | STA NO. | REV. 7 | BT81-T3 0-25584E-1 | SHEET 98 OF 105

10/19/2015 12:00



SHIELD WIRE - 7NO8AW (DISPLAYED @ -20°F, INITIAL SAG)			
FROM STR.	TO STR.	INSTALL QTY.	MAX TENSION NESC HEAVY (LBS)
HL677	HL686	1	3,500
HL686	HL687	1	3,500
HL687	HL696	1	3,500

SHIELD WIRE - OPGW AC99-699-27 (DISPLAYED @ -20°F, INITIAL SAG)			
FROM STR.	TO STR.	INSTALL QTY.	MAX TENSION NESC HEAVY (LBS)
HL677	HL686	1	5,500
HL686	HL687	1	5,000
HL687	HL696	1	5,500

TRANSMISSION WIRE - 954ACSR45K7 (DISPLAYED @ 248°F, MAX SAG)			
FROM STR.	TO STR.	INSTALL QTY.	MAX TENSION NESC HEAVY (LBS)
HL677	HL686	3	10,000
HL686	HL687	3	10,000
HL687	HL696	3	10,000

WORKCODES:
INSTALL TOH1072_I
RETIRE TOH1072_R
MAINTENANCE TOH1072_X

REV.	DATE	BY	CHK.	APP.	DESCRIPTION
13	3-11-2016	MJA	MDW		PORTSMOUTH-TRENTON 138kV LINE #2 REBUILD FROM STR. HL669(BR0-12052E) TO HL1202(BT0-8301)

NO.	DATE	REVISION	
12	10-15-13	32M RECONDUCTOR	LR
11	2-15-13	REPLACE HL 684 & 685 FOR 138KV GROUND CLEARANCE	WC
10	7-6-07	CHG FEEDERS. R. ZIMMERMAN	CM
9	2-9-05	CHG 691-695A PER DRG 6462874, L. ERPENBECK	CM
8	5-20-80	[illegible]	
7	12-13-79	ADD 69KV P 5667 [illegible]	
6	11-3-78	ADD 345 KV CROSSING PER BT74-Y31	
5	11-30-76	REV CROSSINGS [illegible] PER SURVEY	
4	9-20-74	[illegible]	
3	[illegible]	[illegible]	
2	8-10-72	REV. PER CLEARANCES R. PEARSCH	
1	10-4-67	ADD 100°C. FINAL SAG	

FILENAME: F5680 TODHUNTER - PLAN & PROFILE DWG

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DRAFTED BY: MJA
DESIGNED/CHECKED BY: MJA
ENGINEER: MDW
DETAIL PROJECT NO: TOH1072
FUNDING PROJECT: AMOH1013T
DATE ISSUED: 3/11/16

☐ PRELIMINARY
☐ APPROVAL
☐ AS BUILT
DATE ______
NAME ______

DUKE ENERGY.

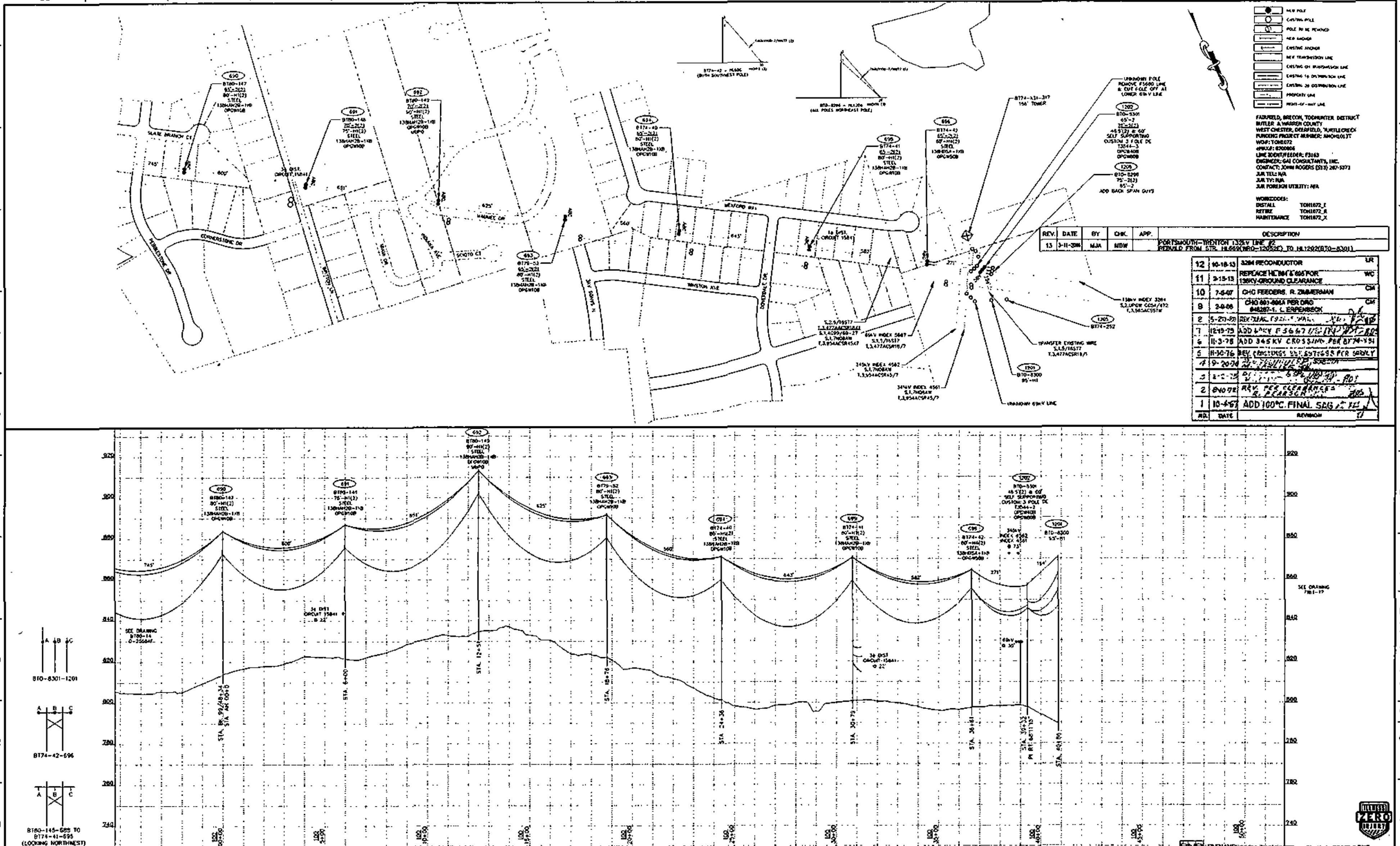
gai consultants

TITLE: PLAN AND PROFILE
PORTSMOUTH - TRENTON 138kV LINE #2
NICKEL TO TODHUNTER 138kV - INDEX #F5680

LOCATION: BUTLER & WARREN COUNTY, OHIO
HL675 TO HL690

HORIZ. SCALE 1"=200' | VERT. SCALE 1"=20' | SCALE FACTOR NONE | STA NO. | REV. 13 | BT80-T4-0-25584F

10/19/2015 12.00



REV.	DATE	BY	CHK.	APP.	DESCRIPTION
13	3-11-2016	MJA	MDW		PORTSMOUTH–TRENTON 138kV LINE #2 REBUILD FROM STR. HL690(BRO-12052C) TO HL1202(BT0-8301)

NO.	DATE	REVISION	
12	10-18-13	3284 RECONDUCTOR	LR
11	2-15-13	REPLACE HL 694 & 695 FOR 138KV-GROUND CLEARANCE	WC
10	7-5-07	CHG FEEDERS. R. ZIMMERMAN	CM
9	2-9-06	CHG 691-696A PER DRG 048287-1. L. ERPENBECK	CM
8	5-20-80	[illegible]	
7	12-19-75	ADD 69KV F5647 [illegible]	
6	11-3-75	ADD 345KV CROSSING PER BT74-Y34	
5	11-30-76	REV. [illegible] FOR SAFETY	
4	9-20-74	[illegible]	
3	[illegible]	[illegible]	
2	8-10-72	REV. PER CLEARANCES R. PEARSON	
1	10-4-67	ADD 100°C. FINAL SAG	

SHIELD WIRE – 7NO8AW (DISPLAYED @ -20F, INITIAL SAG)			
FROM STR.	TO STR.	INSTALL QTY.	MAX TENSION NESC HEAVY (LBS)
HL687	HL696	1	3,500
HL694	HL1201	1	3,500

SHIELD WIRE – OPGW AC39-639-27 (DISPLAYED @ -20F, INITIAL SAG)			
FROM STR.	TO STR.	INSTALL QTY.	MAX TENSION NESC HEAVY (LBS)
HL687	HL696	1	3,500
HL696	HL1201	1	3,000

TRANSMISSION WIRE – 954ACSR45X7 (DISPLAYED @ 248F, MAX SAG)			
FROM STR.	TO STR.	INSTALL QTY.	MAX TENSION NESC HEAVY (LBS)
HL687	HL696	3	10,000
HL696	HL1201	3	10,000

FOR CONSTRUCTION
3/11/16

gai consultants

DRAFTED BY: MJA
DESIGNED/CHECKED BY: MJA
ENGINEER: MDW
DETAIL PROJECT NO: TOH1072
BU/FUNDING PROJECT: AMOH1013T
DATE ISSUED: 3/11/16

☐ PRELIMINARY
☐ APPROVAL
☐ AS BUILT
DATE ______
NAME ______

DUKE ENERGY

FILENAME: F5680 TODHUNTER – PLAN & PROFILE.DWG

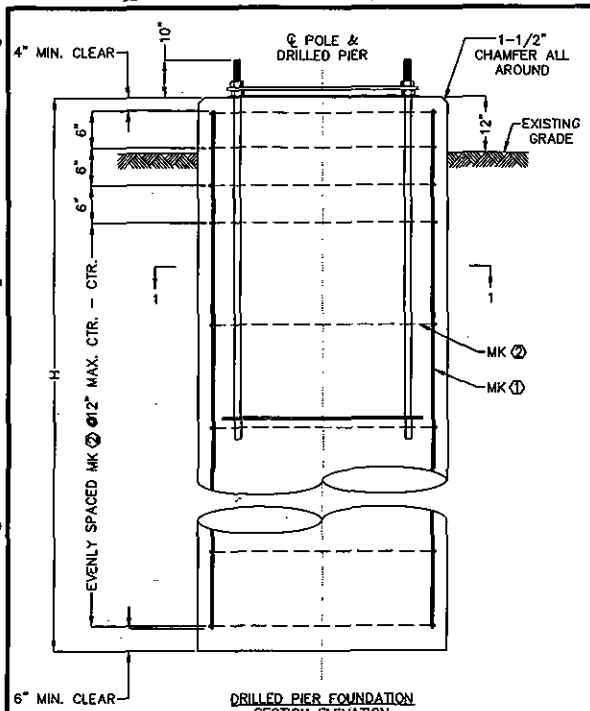
TITLE: PLAN AND PROFILE
PORTSMOUTH – TRENTON 138kV LINE #2
NICKEL TO TODHUNTER 138kV – INDEX #F5680

LOCATION: BUTLER & WARREN COUNTY, OHIO
HL690 TO HL1201

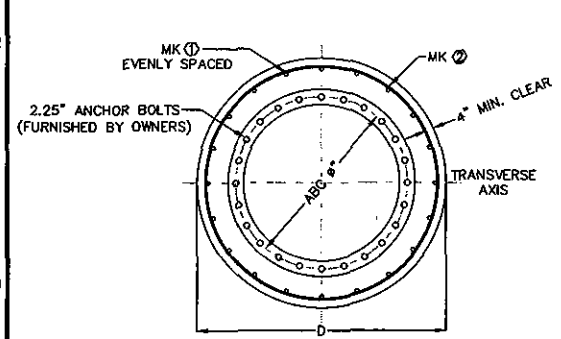
HORIZ. SCALE 1"=200' VERT. SCALE 1"=20' | SCALE FACTOR NONE | STA NO. | REV. 13 | BT74-T4 0-25584E-1
SHEET 100 OF 105

10/19/2015 12:00

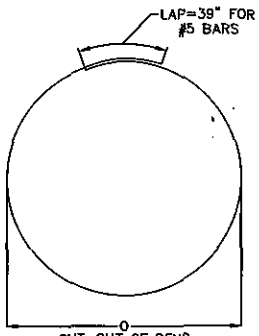
STR. NO.	LINE ANGLE	POLE LENGTH	POLE L,M,R	SOIL BORING	MOMENT (k-ft)	AXIAL (k)	SHEAR (k)	ABC DIA. (IN)	D (ft)	H (ft)	E (ft)	R (ft)	Est. Conc. Vol. (CY)	MARK	QTY	SIZE	LENGTH (FT.)	O (FT)	WEIGHT (lbs)
HL669	LT 15°22'12"	75'-0"	-	HL669	3,408	16	60	58	7.0	23.0	22.0	1.0	32.8	1	14	#11	22.17	N/A	1649
														2	24	#5	22.98	6.28	575



DRILLED PIER FOUNDATION
SECTION ELEVATION



PLAN SECTION 1-1



OUT-OUT OF BEND
MARK ② BEND DIAGRAM

NOTES

1. CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS (EXCEPT ANCHOR BOLT CAGES TO BE SUPPLIED BY DUKE ENERGY) REQUIRED FOR A COMPLETE CONCRETE CYLINDER FOUNDATION INSTALLATION INCLUDING BUT NOT LIMITED TO HAULING ALL MATERIALS TO SITE, AUGERING HOLE, RECEIVING ASSEMBLING AND INSTALLING ANCHOR BOLT CAGE, FURNISHING AND INSTALLING GROUNDING, AND FURNISHING AND INSTALLING REINFORCING STEEL AND CONCRETE.
2. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
3. SOIL OR ROCK CONDITIONS: WHERE SOIL DEPTHS, DEPTHS TO BEDROCK, OR THE CONDITIONS OF SOIL OR BEDROCK DIFFER FROM THAT SHOWN ON THE BORINGS. THE FOUNDATIONS ENGINEER SHALL BE CONTACTED.
4. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
5. ALL WORK SHALL CONFORM TO ACI 301 & ACI 336.3.
6. ALL WORK SHALL CONFORM TO THE PROJECT CONSTRUCTION SPECIFICATION.
7. EXPOSED CONCRETE SHALL BE FORMED AND FINISHED. EDGES SHALL BE CHAMFERED.
8. ALL FOUNDATIONS TO BE GROUNDED PER DUKE ENERGY STANDARDS.
9. V-NOTCH OF ANCHOR BOLT TEMPLATE TO ALIGN WITH THE TRANSVERSE AXIS OF THE STRUCTURE. TRANSVERSE AXIS LIES PERPENDICULAR TO THE BISECTOR OF THE ANGLE TURNED BY THE STRUCTURE.

FOR CONSTRUCTION
03/11/2016

gai consultants
transforming ideas into reality.

DRAWN BY: RCS
DESIGNED/CHECKED BY: MTH
ENGR: MTH
GAI PROJECT NO: TOH1072
DRAWING PROJECT: AMOH1101.37
DATE ISSUED: 03/11/2016

☐ PRELIMINARY
☐ APPROVAL
☐ AS BUILT
DATE _____
NAME _____

DUKE ENERGY.

FND FILENAME: hl669.dwg

FOUNDATION
HL669 SINGLE POLE DEAD END
F5680 TODHUNTER TO NICKEL 138kV REBUILD

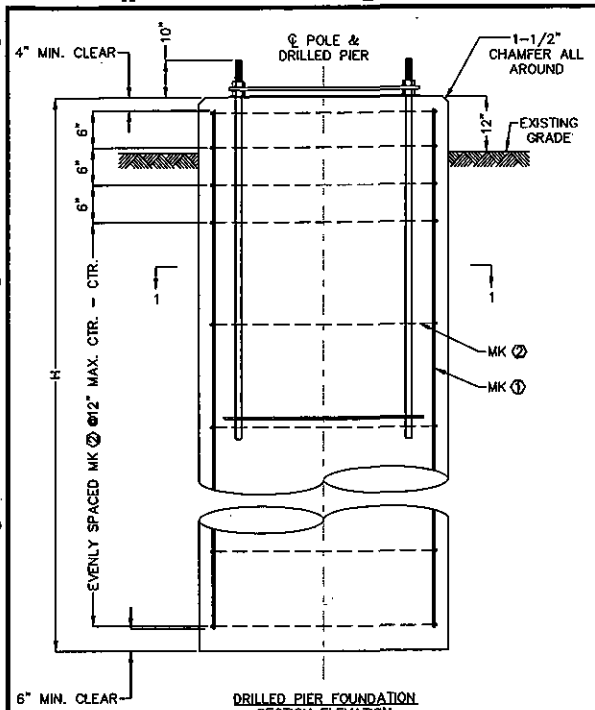
LOCATION: BUTLER & WARREN COUNTY, OHIO

SCALE: NONE | SCALE FACTOR: NONE | STA NO: | REV: 0 | DWG NO: 13544-5 | SHEET NO: SHEET 1 OF 1

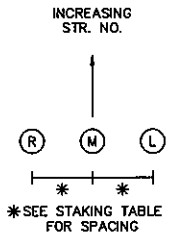
Lwt Plot Date:3/11/2016 10:41 AM

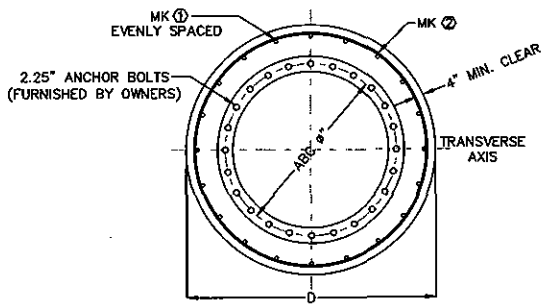
03/11/2016 - 12:00PM

13544-5

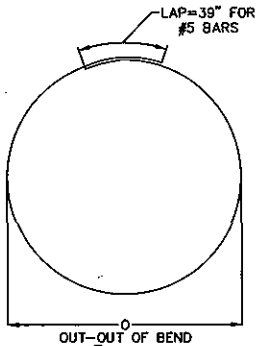


DRILLED PIER FOUNDATION
SECTION ELEVATION





PLAN SECTION 1-1



MK ② BEND DIAGRAM

STR. NO.	LINE ANGLE	POLE LENGTH	POLE L,M,R	SOIL BORING	MOMENT (k-ft)	AXIAL (k)	SHEAR (k)	ABC DIA. (IN)	D (ft)	H (ft)	E (ft)	R (ft)	Est. Conc. Vol. (CY)	MARK	QTY	SIZE	LENGTH (FT.)'	O (FT)	WEIGHT (lbs)
HL676	---	80'-0"	L	HL676	1,915	12	27	49	7.0	22.0	20.7	1.3	31.4	1	18	#11	21.17	N/A	2024
														2	23	#5	22.98	6.28	551
		65'-0"	M		1,077	8	17	49	7.0	22.0	20.8	1.2	31.4	1	18	#11	21.17	N/A	2024
														2	23	#5	22.98	6.28	551
		80'-0"	R		1,915	12	27	49	7.0	22.0	21.0	1.0	31.4	1	18	#11	21.17	N/A	2024
														2	23	#5	22.98	6.28	551

NOTES

1. CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS (EXCEPT ANCHOR BOLT CAGES TO BE SUPPLIED BY DUKE ENERGY) REQUIRED FOR A COMPLETE CONCRETE CYLINDER FOUNDATION INSTALLATION INCLUDING BUT NOT LIMITED TO HAULING ALL MATERIALS TO SITE, AUGERING HOLE, RECEIVING ASSEMBLING AND INSTALLING ANCHOR BOLT CAGE, FURNISHING AND INSTALLING GROUNDING, AND FURNISHING AND INSTALLING REINFORCING STEEL AND CONCRETE.
2. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
3. SOIL OR ROCK CONDITIONS: WHERE SOIL DEPTHS, DEPTHS TO BEDROCK, OR THE CONDITIONS OF SOIL OR BEDROCK DIFFER FROM THAT SHOWN ON THE BORINGS. THE FOUNDATIONS ENGINEER SHALL BE CONTACTED.
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8. ALL FOUNDATIONS TO BE GROUNDED PER DUKE ENERGY STANDARDS.
9. V-NOTCH OF ANCHOR BOLT TEMPLATE TO ALIGN WITH THE TRANSVERSE AXIS OF THE STRUCTURE. TRANSVERSE AXIS LIES PERPENDICULAR TO THE BISECTOR OF THE ANGLE TURNED BY THE STRUCTURE.
10. TOP OF CONCRETE ELEVATION FOR ALL THREE FOUNDATIONS = 713.4 ASL.

FOR CONSTRUCTION
03/11/2016

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DRAWN BY: RCS
CHECKED/PASSED BY: MTH
DESIGNED BY: MTH
GAI PROJECT NO: TOH1072
ENGINEERING PROJECT: NMOH10137
DATE ISSUED: 03/11/2016

☐ PRELIMINARY
☐ APPROVAL
☐ AS BUILT
DATE: _____
NAME: _____

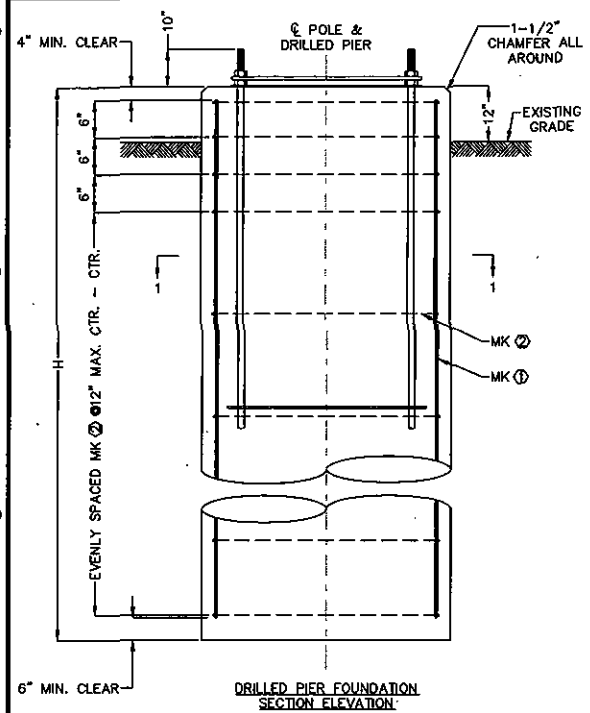
DUKE ENERGY.

FND FILENAME: hl676.dwg
TITLE: FOUNDATION
HL676 3 POLE DEAD END
F5680 TODHUNTER TO NICKEL 138kV REBUILD
LOCATION: BUTLER & WARREN COUNTY, OHIO
SCALE: NONE
SCALE FACTOR: NONE
STA NO:
REV. 0
DRG NO. 13544-6
SHEET NO. SHEET 1 OF 1

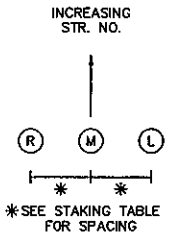
Last Plot Date: 3/11/2016 10:55 AM

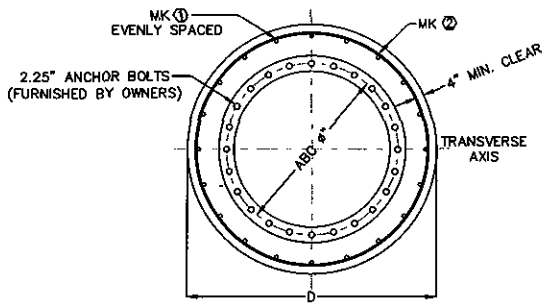
03/11/2016 - 12:00PM

13544-6



DRILLED PIER FOUNDATION
SECTION ELEVATION





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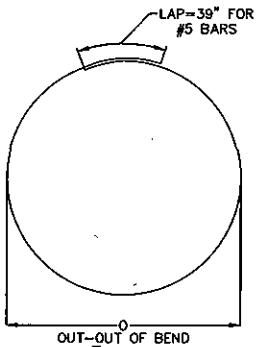

OUT-OUT OF BEND
MARK ② BEND DIAGRAM

STR. NO.	LINE ANGLE	POLE LENGTH	POLE L,M,R	SOIL BORING	MOMENT (k-ft)	AXIAL (k)	SHEAR (k)	ABC DIA. (IN)	D (ft)	H (ft)	E (ft)	R (ft)	Est. Conc. Vol. (CY)	MARK	QTY	SIZE	LENGTH (FT.)	O (FT)	WEIGHT (lbs)
HL677	---	80'-0"	L	HL677	1,915	12	27	49	7.0	22.0	20.1	1.9	31.4	1	14	#11	21.17	N/A	1574
														2	23	#5	22.98	6.28	551
		65'-0"	M		1,077	8	17	49	7.0	22.0	20.5	1.5	31.4	1	14	#11	21.17	N/A	1574
														2	23	#5	22.98	6.28	551
		80'-0"	R		1,915	12	27	49	7.0	22.0	21.0	1.0	31.4	1	14	#11	21.17	N/A	1574
														2	23	#5	22.98	6.28	551

NOTES

1. CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS (EXCEPT ANCHOR BOLT CAGES TO BE SUPPLIED BY DUKE ENERGY) REQUIRED FOR A COMPLETE CONCRETE CYLINDER FOUNDATION INSTALLATION INCLUDING BUT NOT LIMITED TO HAULING ALL MATERIALS TO SITE, AUGERING HOLE, RECEIVING ASSEMBLING AND INSTALLING ANCHOR BOLT CAGE, FURNISHING AND INSTALLING GROUNDING, AND FURNISHING AND INSTALLING REINFORCING STEEL AND CONCRETE.
2. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
3. SOIL OR ROCK CONDITIONS: WHERE SOIL DEPTHS, DEPTHS TO BEDROCK, OR THE CONDITIONS OF SOIL OR BEDROCK DIFFER FROM THAT SHOWN ON THE BORINGS. THE FOUNDATIONS ENGINEER SHALL BE CONTACTED.
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8. ALL FOUNDATIONS TO BE GROUNDED PER DUKE ENERGY STANDARDS.
9. V-NOTCH OF ANCHOR BOLT TEMPLATE TO ALIGN WITH THE TRANSVERSE AXIS OF THE STRUCTURE. TRANSVERSE AXIS LIES PERPENDICULAR TO THE BISECTOR OF THE ANGLE TURNED BY THE STRUCTURE.
10. TOP OF CONCRETE ELEVATION FOR ALL THREE FOUNDATIONS = 719.6 ASL.

FOR CONSTRUCTION
03/11/2016

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DRAWN BY: RCS
DESIGNED/CHECKED BY: MTH
ENGINEER: MTH
GAI PROJECT NO.: TOH1072
DUKE ENERGY PROJECT: ANCH11031
DATE ISSUED: 03/11/2016

☐ PRELIMINARY
☐ APPROVAL
☐ AS BUILT
DATE _____
NAME _____

DUKE ENERGY.

FND FILENAME: hl677.dwg

TITLE: FOUNDATION
HL677 3 POLE DEAD END
F5680 TOOHUNTER TO NICKEL 138kV REBUILD

LOCATION: BUTLER & WARREN COUNTY, OHIO

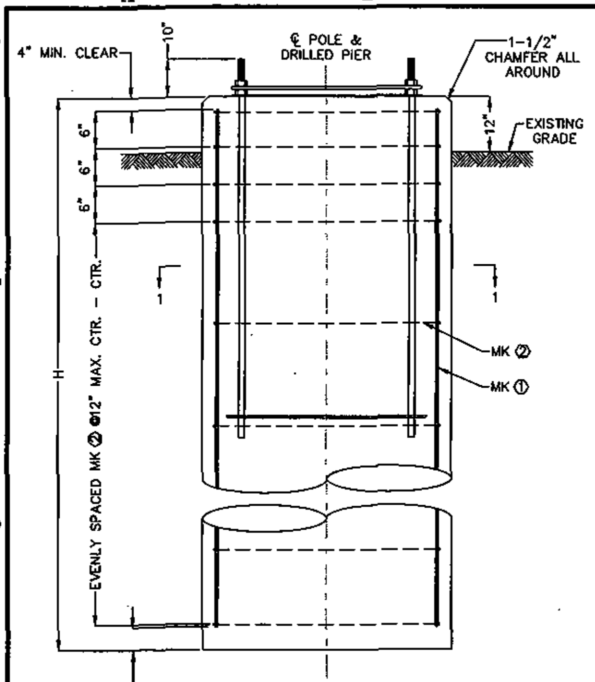
SCALE: NONE | SCALE FACTOR: NONE | STA NO: | REV: 0 | DWG NO: 13544-7 | SHEET NO: SHEET 1 OF 1

03/11/2016 - 12:00PM

Last Plot Date:3/11/2016 10:59 AM

13544-7

STR. NO.	LINE ANGLE	POLE LENGTH	POLE L,M,R	SOIL BORING	MOMENT (k-ft)	AXIAL (k)	SHEAR (k)	ABC DIA. (IN)	D (ft)	H (ft)	E (ft)	R (ft)	Est. Conc. Vol. (CY)	MARK	QTY	SIZE	LENGTH (FT.)	O (FT)	WEIGHT (lbs)
HL1202	RT 68°11'24"	48'-6"	L	HL1202	818	5	18	44	6.0	19.0	17.5	1.5	19.9	1	18	#11	18.17	N/A	1737
														2	20	#5	19.84	5.28	414
		48'-6"	M		818	5	18	44	6.0	19.0	17.2	1.8	19.9	1	18	#11	18.17	N/A	1737
														2	20	#5	19.84	5.28	414
		60'-0"	R		1,152	7	23	44	6.0	19.0	17.9	1.1	19.9	1	18	#11	18.17	N/A	1737
														2	20	#5	19.84	5.28	414



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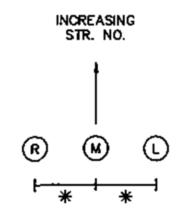
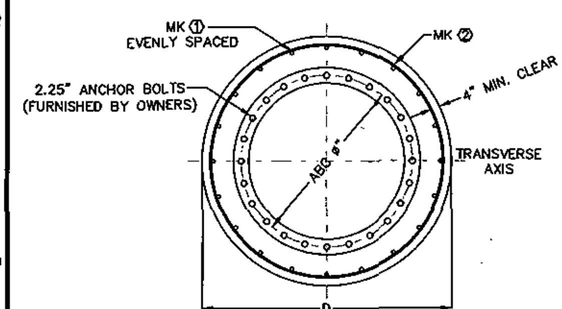
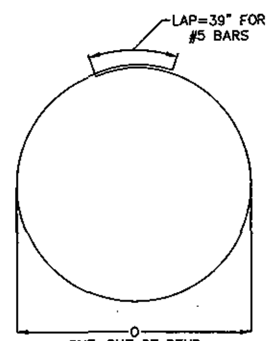


*SEE STAKING TABLE FOR SPACING



PLAN SECTION 1-1



OUT-OUT OF BEND
MARK ② BEND DIAGRAM

NOTES

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10. TOP OF CONCRETE ELEVATION FOR ALL THREE FOUNDATIONS = 799.3 ASL.

FOR CONSTRUCTION
03/11/2016

gai consultants
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DRAWN BY: RCS
CHECKED BY: MTH
APPROVED: MTH
PROJECT NO.: TOH1072
DATE ISSUED: 03/11/2016

☐ PRELIMINARY
☐ APPROVAL
☐ AS BUILT
DATE ______
NAME ______

DUKE ENERGY.

FND FILENAME: H1202.dwg
TITLE: FOUNDATION
HL1202 3 POLE DEAD END
F5680 TOOHUNTER TO NICKEL 138kV REBUILD
LOCATION: BUTLER & WARREN COUNTY, OHIO
SCALE: NONE
REV: 0
DWG NO.: 13544-8
SHEET 1 OF 1

Appendix C

Letters to Officials

DUKE ENERGY®

August 22, 2016

Attn: Public Agency Officials

Letter of Notification
Duke Energy Ohio 5680 – 138 kV Todhunter to Nickel

Duke Energy Ohio, Inc., has submitted a Letter of Notification to the Ohio Power Siting Board regarding the planned construction of a 3.68-mile electric transmission line. The Letter of Notification submittal is required in accordance with Chapter 4906 of the Ohio Administrative Code. The location of the Project area is situated on property for which Duke Energy Ohio, Inc., already has rights of way, as illustrated on the enclosed maps.

In accordance with Ohio Administrative Code (O.A.C.) 4906-1-01, Appendix A, we are required to prepare this Letter of Notification for the Ohio Power Siting Board and, in compliance with O.A.C. 4906-6-07, we are hereby providing you with an electronic copy of the filing. A hard copy is available upon request.

Please feel free to contact me at (317) 838-2447, if you have any questions concerning this project.

Cordially,
Duke Energy Ohio, Inc.

/S/ Amanda J. Sheehe
Amanda J. Sheehe, E.I.
Permitting Specialist

Attachment

DUKE ENERGY®

155 East Broad Street
20th Floor
Columbus, Ohio, 43215

o: 614-222-1330
f: 614-222-1337

August 22, 2016

Attn: Public Library Directors

Dear Sir/Madam:

Pursuant to Ohio Revised Code 4906.06 (B), this letter is sent to notify you that Duke Energy, Ohio, Inc. filed an Application on August 22, 2016 with the Ohio Power Siting Board of the Public Utilities Commission of Ohio to increase the capacity of a portion of the existing DEO-A 5680-139 kV Todhunter to Nickel line. Interested persons may obtain an electronic or paper copy of the Application at the Ohio regional office of Duke Energy Ohio at 139 E. Fourth Street, Cincinnati, Ohio or by contacting the following:

Jeanne W. Kingery
Associate General Counsel
155 East Broad Street
Suite 2100
Columbus, Ohio 43215
614-222-1330

Sincerely,

Jeanne W. Kingery

Appendix D

City of Monroe Flood Damage Prevention Correspondence

Cori Jansing

From: Dan Arthur <arthurd@monroeohio.org>
Sent: Wednesday, July 06, 2016 9:03 AM
To: Cori Jansing
Subject: RE: Special Flood Hazard Form

You do not have to fill out the flood hazard form since you are not doing any earth work and you are only removing and replacing existing facilities on your system.

Have a great day!

Thank You,

Daniel J. Arthur, P.E.
Director of Public Works
City of Monroe, Ohio
Ph. 513.727.8953

From: Cori Jansing [mailto:cori.jansing@cardno.com]
Sent: Tuesday, July 5, 2016 4:18 PM
To: Dan Arthur <arthurd@monroeohio.org>
Subject: RE: Special Flood Hazard Form

Dan,

I contacted you earlier today regarding clarification of whether or not a Duke Energy line removal and structure replacement project would be considered exempt from filing a floodway permit within the City of Monroe. The project involves the removal of 13 existing structures and the replacement of 10 existing structures located within a designated FEMA 100 YR flood zone. I am having a hard time locating the City of Monroe's floodway regulations but have been able to determine that the project is considered exempt from floodplain permit requirements per Section 4.2 (c) of Butler County's Flood Damage Prevention Regulations. I just want to make sure we advise Duke on the correct level of coordination, whether a local stormwater permit and/or Construction in a Flood is needed, and what if anything else is necessary for transmission line work in your jurisdiction.

Thanks for your help,

Cori

Cori Jansing
SENIOR STAFF SCIENTIST
ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
CARDNO

Office (+1) 513-489-2402 Ext 112 Mobile (+1) 513-833-6392 Fax (+1) 513-489-2404
Address 11121 Canal Road, Cincinnati, OH 45241
Email cori.jansing@cardno.com Web www.cardno.com

From: Dan Arthur [mailto:arthurd@monroeohio.org]
Sent: Friday, July 01, 2016 2:39 PM
To: Cori Jansing <cori.jansing@cardno.com>
Subject: Special Flood Hazard Form

Cori,

Attached is the special flood hazard form for the City of Monroe. Please fill this out and scan it back to us for this project. If you have any questions, please do not hesitate to contact me.

Have a happy 4th of July!

Thank You,

Daniel J. Arthur, P.E.
Director of Public Works
City of Monroe, Ohio
Ph. 513.727.8953

Appendix E

Regulated Waters Delineation Report

Regulated Waters Delineation Report

5680 138kV Todhunter to Nickel - Rebuild

Monroe, Butler and Warren County, Ohio

August 22, 2016

Cardno

Shaping the Future

Document Information

Prepared for	Duke Energy
Client Contact	Amanda Sheehe
Project Name	5680 138kV Todhunter to Nickel - Rebuild
Project Number	Cardno #J156720M23
Project Manager	Joel Thrash (Cardno)
Date	August 22, 2016

Prepared for:

DUKE ENERGY.

Duke Energy
1000 East Main Street, Plainfield, Indiana 46168

Prepared by:

Cardno
Shaping the Future

Cardno
11121 Canal Road, Cincinnati, Ohio 45241

Table of Contents

Appendices

Tables

Figures

Acronyms

APA	Administrative Procedure Act
BF	Bank Full
CFR	Code of Federal Regulations
CWA	Clean Water Act
DBH	Diameter at Breast Height
DP	Data Point
EPA	U.S. Environmental Protection Agency
ETR	Endangered, Threatened, and Rare
FAC	Facultative Plant
FACU	Facultative Upland Plant
FACW	Facultative Wetland Plant
FEMA	Federal Emergency Management Agency
FIRM	Insurance Rate Map
GIS	Geographical Information SystemAcronyms, continued
MS4	Municipal Separate Storm Water Sewer Systems

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

1 Introduction

Cardno was contracted to perform a water resource inventory, including wetlands and streams, which are located at the 5680 - 345kV Todhunter to Nickel - New Build (Todhunter To Nickel) Study Area in Butler and Warren Counties, Ohio on May 31, 2016 and June 6-7, 2016. Table 1-1 summarizes the location of the Study Area based on the Public Land Survey Section (PLSS) data.

Table 1-1 PLSS within the 5680 - Todhunter to Nickel Study Area

Township	Range	Section
3E	3N	5
3E	3N	11
3E	3N	12
3E	3N	18

The total size of the Study Area was approximately 65.5 acres. The Study Area was primarily maintained right-of-way (ROW)/scrub-shrub, emergent wetland, and residential turf/industrial land.

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

2 Regulatory Definitions

2.1 Waters of the United States

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

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

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

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

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

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

Also on May 27, 2015 a publication, *Technical Support Document for the Clean Water Rule: Definition of Waters of the United States* (EPA, 2105), was released discussing in detail why the significant nexus (SNE) between one water and another is important. It specifically ties distances to the various types of waters mentioned within the Code of Federal Regulations [33 CFR

328.3(a)(1) through (a)(8)]. For example, the document states "Waters located within the 100-year floodplain of a traditional navigable water, interstate water, or the territorial seas and waters located more than 1,500 feet and less than 4,000 feet from the lateral limit of an (a)(1) or (a)(3) water may still be determined to have a significant nexus on a case-specific basis under paragraph (a)(8) of the rule and, thus, be a "water of the United States" (EPA 2015).

On June 29, 2015 the new Clean Water Rule was entered into the Federal Register (40 CFR Parts 110, 112, 116, et al. Clean Water Rule: Definition of "waters of the United States"; Final Rule). This report will refer to this rule as "June 29, 2015 WOTUS Rule". This rule includes exact distances mentioned in the May 27, 2015 Technical Support Document as it relates to adjacent waters, including the following:

- Waters within 100 ft. of jurisdictional waters;
- Waters within the 100-year floodplain to a maximum of 1,500 feet from the ordinary high water mark (OHWM);
- Waters within the 100-year floodplain with a SNE to the Traditional Navigable Water (TNW); and
- Waters with a SNE within 4,000 ft. of jurisdictional waters.

On October 9, 2015 the U.S. Court of Appeals for the Sixth Circuit (Court) issued a nationwide stay against the enforcement of the June 29, 2015 WOTUS Rule. The Court stated, "...we conclude that...Justice Kennedy's opinion in *Rapanos* represents the best instruction on the permissible parameters of "waters of the United States" as used in the Clean Water Act, it is far from clear that the new Rule's distance limitations are harmonious with the instruction.

Moreover, the Court stated that the rulemaking process by which the distance limitations were adopted is facially suspect. Petitioners contend the proposed rule that was published, on which interested persons were invited to comment, did not include any proposed distance limitations in its use of terms like "adjacent waters" and "significant nexus." Consequently, petitioners contend, the Final Rule cannot be considered a "logical outgrowth" of the rule proposed, as required to satisfy the notice-and-comment requirements of the APA, 5 U.S.C. § 553. As a further consequence of this defect, petitioners contend, the record compiled by respondents is devoid of specific scientific support for the distance limitations that were included in the Final Rule. They contend the Rule is therefore not the product of reasoned decision-making and is vulnerable to attack as impermissibly "arbitrary or capricious" under the APA, 5 U.S.C. § 706(2)."

Until further notice, the June 29, 2015 WOTUS Rule is not in effect. Furthermore, this report does not attempt to include a professional opinion as it relates to the June 29, 2015 WOTUS Rule.

2.2 Waters of the State

"Waters of the State" are within the jurisdiction of the Ohio Environmental Protection Agency (OEPA). They are generally defined as surface and underground water bodies, which extend through or exist wholly in the State of Ohio, which includes, but is not limited to, streams and both isolated and non-isolated wetlands. Private ponds, or any pond, reservoir, or facility built for reduction of pollutants prior to discharge are not included in this definition. In addition to "waters of the U.S.", OEPA also regulates and issues permits for isolated wetland impacts.

OEPA relies on the USACE decision regarding wetland determinations and delineations including whether or not a wetland is isolated or non-isolated.

2.3 Wetlands

Wetlands are a category of "waters of the U.S." for which a specific identification methodology has been developed. As described in detail in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), wetland boundaries are delineated using three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. In addition to the criteria defined in the 1987 Manual, the procedures described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Environmental Laboratory, 2010) were used to evaluate the Study Area for the presence of wetlands.

2.3.1 Hydrophytic Vegetation

On June 1, 2012, the National Wetland Plant List (NWPL), formerly called the National List of Plant Species that Occur in Wetlands (Reed 1988), went into effect after being released by the U.S. Army Corps of Engineers (USACE) as part of an interagency effort with the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (Lichvar and Kartesz, 2009). The NWPL, along with the information implied by its wetland plant species status ratings, provides general botanical information about wetland plants and is used extensively in wetland delineation, restoration, and mitigation efforts. The NWPL consists of a comprehensive list of wetland plant species that occur within the United States along with their respective wetland indicator statuses by region. An indicator status reflects the likelihood that a particular plant species occurs in a wetland or upland (Lichvar et al. 2012). Definitions of the five indicator categories are presented below.

OBL (Obligate Wetland Plants): almost always occur in wetlands. With few exceptions, these plants (herbaceous or woody) are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface. These plants are of four types: submerged, floating, floating-leaved, and emergent.

FACW (Facultative Wetland Plants): usually occur in wetlands, but may occur in non-wetlands. These plants predominately occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at least seasonally.

FAC (Facultative Plants): occur in wetlands and non-wetlands. These plants can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil pH, and elevation, and they have a wide tolerance of soil moisture conditions.

FACU (Facultative Upland Plants): usually occur in non-wetlands, but may occur in wetlands. These plants predominately occur on drier or more mesic sites in geomorphic settings where water rarely saturates the soils or floods the soil surface seasonally.

UPL (Upland Plants): almost never occur in wetlands. These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

According to the USACE's Midwest Regional Supplement, plants that are rated as FAC, FACW, or OBL are classified as wetland plant species. The percentage of dominant wetland species in each of the four vegetation strata (tree, shrub/sapling, herbaceous, and woody vine) in the sample area determines the hydrophytic (wetland) status of the plant community. Dominant species are chosen independently from each stratum of the community. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total.

For the purposes of determining dominant plant species, the four vegetation strata are defined. Trees consist of woody species 3 inches or greater in diameter at breast height (DBH). Shrubs and saplings are woody species that are over 1 meter in height and less than 3 inches DBH. Herbaceous species consist of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants less than 1 meter tall. Woody vines consist of vine species greater than 1 meter in height, such as wild grapes.

2.3.2 Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. In general, hydric soils are flooded, ponded, or saturated for a week or more during the growing season when soil temperatures are above 32 degrees Fahrenheit. The anaerobic conditions created by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry, which are used to differentiate hydric from non-hydric soils.

In this report, soil colors are described using the Munsell notation system. This method of describing soil color consists of separate notations for hue, value, and chroma that are combined in that order to form the color designation. The hue notation of a color indicates its relation to red, yellow, green, blue, and purple; the value notation indicates its lightness, and the chroma notation indicates its strength or departure from a neutral of the same lightness.

The symbol for hue consists of a number from 1 to 10, followed by the letter abbreviation of the color. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The notation for value consists of numbers from 0 for absolute black, to 10 for absolute white. The notation for chroma consists of numbers beginning with /0 for neutral grays and increasing at equal intervals. A soil described as 10YR 3/1 soil is more gray than a soil designated 10YR 3/6.

2.3.3 Wetland Hydrology

Wetland hydrology is defined as the presence of water for a significant period of time at or near the surface (within the root zone) during the growing season. Wetland hydrology is present only seasonally in many cases, and is often inferred by indirect evidence. Hydrology is controlled by such factors as seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage. Primary indicators of hydrology are inundation, soil saturation in the upper 12 inches of the soil, watermarks, sediment deposits, and drainage patterns. Secondary indicators such as oxidized root channels in the upper 12 inches of the soil, water-stained leaves, local soil survey data, and the FAC-neutral vegetation test are sometimes used to identify hydrology. A primary indicator or two or more secondary indicators are required to establish a positive indication of hydrology.

2.3.4 Wetland Definition Summary

In general, an area must meet all three criteria to be classified as a wetland. In certain problem areas such as seasonal wetlands, which are not wet at all times, or in recently disturbed (atypical) situations, areas may be considered a wetland if only two criteria are met. In special situations, an area that meets the wetland definition may not be within the USACE's jurisdiction due to a specific regulatory exemption.

2.4 Streams, Rivers, Watercourses & Jurisdictional Ditches

With non-tidal waters, in the absence of adjacent wetlands, the extent of the USACE's jurisdiction is defined by the OHWM. USACE regulations define the term "ordinary high water mark" for purposes of the CWA lateral jurisdiction at 33 CFR 328.3(e), which states:

> The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Streams, rivers, watercourse, and ditches within the Study Area were evaluated using the above definition and documented. Waterways that did exhibit an OHWM were recorded and evaluated using the Ohio Environmental Protection Agency's Primary Headwater Habitat Evaluation (HHEI) or Qualitative Habitat Evaluation Index (QHEI) methodology. If applicable, the results of the HHEI and/or QHEI are presented in Section 3.2, Technical Descriptions and datasheets are provided in the Appendix B.

2.5 Endangered Species Act

Endangered, Threatened, and rare (ETR) species are protected at both the state and federal level (ORC 1531.25 and 50 CFR 17.11 through 17.12, respectively). The Ohio Revised Code defines "Take" as to harass, hunt, capture, or kill; or attempt to harass, hunt, capture, or kill.

The USFWS, under authority of the Endangered Species Act of 1973 (16 U.S. Code 1531), as amended, has the responsibility for federally listed species. The Ohio Department of Natural Resources (ODNR) has the responsibility for state listed species.

3 Background Information

3.1 Existing Maps

Several sources of information were consulted to identify potential wetlands and wetland soil units on the site. These include the USFWS's *National Wetland Inventory* (NWI), the USGS's *National Hydrography Dataset* (NHD), and the Natural Resources Conservation Service's (NRCS) *Soil Survey* for this county. These maps identify potential wetlands and wetland soil units on the site. The NHD maps are used to portray surface water. The NWI maps were prepared from high altitude photography and in most cases were not field checked. Because of this, wetlands are sometimes erroneously identified, missed, or misidentified. Additionally, the criteria used in identifying these wetlands were different from those currently used by the USACE. The county soil maps, on the other hand, were developed from actual field investigations. However, they address only one of the three required wetland criteria and may reflect historical conditions rather

than current site conditions. The resolution of the soil maps limits their accuracy as well. The mapping units are often generalized based on topography and many mapping units contain inclusions of other soil types for up to 15 percent of the area of the unit. The USACE does not accept the use of either of these maps to make wetland determinations.

3.1.1 National Wetland Inventory

The NWI map of the area (Figure 1) identified mapped one wetland feature (PUBGx) within the Survey Area.

3.1.2 National Hydrography Dataset

The NHD dataset (Figure 1) identified two surface waters within the Survey Area.

3.1.3 Soil Survey

The NRCS Soil Survey identified eighteen (18) soil series within Butler County and twelve (12) soil series within Warren County located within the project study area (Figure 3). The following table identifies the soil unit symbol, soil unit name, and whether or not the soil type contains components that meet the hydric soil criteria.

Table 3-2 Soil Map Units within the 5680 - Todhunter To Nickel Study Area

Symbol	Description	Hydric
	Butler County	
DaB	Dana silt loam, 2 to 6 percent slopes	No
DbB	Dana silt loam, bedrock substratum, 2 to 8 percent slopes	No
EcE2	Eden silty clay loam, 15 to 25 percent slopes	No
MsC2	Miamian-Russel silt loams, 6 to 12 percent slopes, moderately eroded	No
MtC2	Miamian-Russel silt loams, bedrock substratum, 6 to 12 percent slopes	No
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes	Yes
RtB	Russel silt loam, 0 to 2 percent slopes	No
RvB	Russel-Miamian silt loams, 2 to 6 percent slopes	No
RwB	Russel-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes	No
RwB2	Russel-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded	No
Ud	Udorthents	No
W	Water	No
WuB	Wynn-Urban land complex, gently sloping	No
WuC	Wynn-Urban land complex, sloping	No
WyB	Wynn-Urban land complex, 2 to 6 percent slopes	No
WyB2	Wynn-Urban land complex, 2 to 6 percent slopes, moderately eroded	No
WyC2	Wynn-Urban land complex, 6 to 12 percent slopes, moderately eroded	No
XfB	Xenia silt loam, bedrock substratum, 2 to 6 percent slopes	No
	Warren County	
Br	Brookston silty clay loam, fine-silty, 0 to 2 percent slopes	Yes
DaB	Dana silt loam, 2 to 6 percent slopes	No
FhA	Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	No
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slope, moderately eroded	No
MrC2	Miamian-Hennepin silt loams, 12 percent slopes, moderately eroded	No
Pb	Patton silt loam, silted	Yes

Pc	Patton silty clay loam	Yes
RvB	Miamian-Russel silt loams, 2 to 6 percent slopes	No
RvB2	Miamian-Russel silt loams, 2 to 6 percent slopes, moderately eroded	No
Ud	Udorthents	No
W	Water	No
XeB	Xenia silt loam, bedrock substratum, Southern Ohio Till Plain, 2 to 6 percent slopes	No

4 Methodology and Description

4.1 Regulated Waters Investigation

The delineation of regulated waters within the Study Area was based on the methodology described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Environmental Laboratory, 2010) as required by current USACE policy.

Prior to the field work, the background information was reviewed to establish the probability and potential location of wetlands on the site. Next, a general reconnaissance of the Study Area was conducted to determine site conditions. The site was then walked with the specific intent of determining wetland boundaries. Data stations were established at locations within and near the wetland areas to document soil characteristics, evidence of hydrology and dominant vegetation. Note that no attempt was made to examine a full soil profile to confirm any soil series designations. However, when possible, soils were examined to a depth of at least 16 inches to assess soil characteristics and site hydrology. Complete descriptions of typical soil series can be found in the soil survey for these counties.

4.1.1 Site Photographs.

Photographs of the site are located in Appendix A. These photographs are the visual documentation of site conditions at the time of inspection. The photographs are intended to provide representative visual samples of any wetlands or other special features found on the site.

4.1.2 Delineation Data Sheets.

Where stations represent a wetland boundary point they are presented as paired data points (dp), one each documenting the wetland and upland sides of the wetland boundary. These forms are the written documentation of how representative sample stations met or did not meet each of the wetland criteria. For plant species included on the National Wetlands Plant List, nomenclature will follow their lead. For all other plants not listed in the NWPL, nomenclature will follow the USDA's Plants Database.

4.2 Technical Descriptions

Complete stream field data sheets from the site investigation are located in Appendix B wetland field data sheets are located in Appendix C. The 5680 -Todhunter to Nickel Rebuild project begins and the Duke Energy's Todhunter Station located south of Todhunter Road and west of Wicklow Lane (39.454930, -84.376347) and terminates at Duke Energy's Nickel Station (39.426871, -84.426871) (Figure 1). The area investigated included an approximated 3.68 mile long by 150 foot wide ROW (65.5 acres) study area. The Study Area was primarily maintained right-of-way (ROW)/scrub-shrub, emergent wetland, and maintained residential turf/industrial land.

4.2.1 Wetland and Stream Descriptions

Wetland 1 (6.78 acre within the Study Area)

Wetland 1 was an emergent wetland is located within excavated detention basin associated with the adjacent commercial/industrial facilities. Based on historic aerials this detention basin was constructed after 2006. This wetland is hydraulically connected to Stream 1 (Millers Creek) and therefore should be considered a jurisdictional 'waters of the U.S' under the current Rapanos guidance. The ORAM score for Wetland 1 was 31, categorizing the wetland as a modified Category 1 or 2 Gray Zone, or moderate quality, wetland.

Dominant vegetation within Wetland 1 included Hybrid Cattail (*Typha X glauca*, OBL). In addition, non-dominant vegetation observed included Common Duckweed (*Lemna minor*, OBL), Black Willow (*Salix nigra*, OBL), and Dark-Green Bulrush (*Scirpus atrovirens*, OBL). The soil within Wetland 1 data point was mapped as Patton silty clay loam (Pc), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Saturation (A3), and secondary indicators of hydrology observed included Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Wetland 2 (0.08 acre), Wetland 3 (0.02 acre), and Wetland 4 (0.02 acre)

Wetland 2, Wetland 3, and Wetland 4 were emergent wetlands located in depressional areas adjacent to roadways associated with surface water drainage conveyance. These wetlands flow into the City of Monroe stormwater system and therefore should be considered a non-jurisdictional 'waters of the State' under the current Rapanos guidance. The ORAM score for Wetland 2 and Wetland 3 was 11, categorizing them as a Category 1, or low quality wetlands. The ORAM score for Wetland 4 was 13, categorizing it as a Category 1, or low quality wetland.

Dominant vegetation within these wetlands included Kentucky Blue Grass (*Poa pratensis*, FAC), and Hybrid Cattail (*Typha X glauca*, OBL). In addition, non-dominant vegetation observed included Single-Vein Sweetflag (*Acorus calamus*, OBL), Blunt Spike-Rush (*Eleocharis obtusa*, OBL), Dark-Green Bulrush (*Scirpus atrovirens*, OBL), Curly Dock (*Rumex crispus*, FAC), and Common Fox Sedge (*Carex vulpinoidea*, FACW). The soil within these wetlands were mapped as Dana Silt Loam (Da), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. Primary indicators of hydrology included Saturation (A3), and secondary indicators of hydrology observed included Drainage Patterns (B10), Geomorphic Position (D2), and the FAC-Neutral Test (D5). DP03 represents Wetland 2 and Wetland 3 located in a low area adjacent to Lebanon Road.

Wetland 5 (0.38 acres within the Study Area)

Wetland 5 was an emergent wetland is located within excavated area associated with the adjacent commercial/industrial facilities. Based on historic aerials area was excavated after 2004. Wetland 5 flows north offsite towards Stream 2, a tributary to Millers Creek a relatively permanent navigable water (RPW). Due to this connection, this wetland should be considered a jurisdictional water of the United States. The ORAM score for Wetland 5 was 15, categorizing the wetland as a Category 1, or low quality wetland.

Dominant vegetation within Wetland 5 included Narrow-Leaf Cat-Tail (*Typha angustifolia*, OBL). In addition, non-dominant vegetation observed included Fuller's Teasel (*Dipsacus fullonum*, FACU), Black Willow (*Salix nigra*, OBL), and Eastern Cottonwood (*Populus deltoides*, FAC). The soil within Wetland 5 was mapped as Miamian-Russell silt loams (MtC2), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. Primary indicators of hydrology included Saturation (A3), and secondary indicators of hydrology observed included Drainage Patterns (B10), Geomorphic Position (D2), and the FAC-Neutral Test (D5).

Wetland 6 (0.09 acres within the Study Area)

Wetland 6 was an emergent wetland is located within depressional area adjacent to Stream 2. Wetland 6 flows north into Stream 2, a tributary to Millers Creek, a relatively permanent navigable water (RPW), thus Wetland 06 should be considered a jurisdictional 'waters of the U.S' under the current Rapanos guidance. The ORAM score for Wetland 6 was 20, categorizing the wetland as a Category 1, or low quality wetland.

Dominant vegetation within Wetland 6 included Reed Canary Grass (*Phalaris arundinacea*, FACW). In addition, non-dominant vegetation observed included Hybrid Cattail (*Typha X glauca*, OBL), and Spotted Touch-Me-Not (*Impatiens capensis*, FACW). The soil within Wetland 06 was mapped as Miamian-Russell silt loams (MtC2), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. Primary indicators of hydrology included Saturation (A3), and secondary indicators of hydrology observed included Drainage Patterns (B10), Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Wetland 7 (0.67 acres within the Study Area)

Wetland 7 was an emergent wetland is located within depressional area between a residential community and State Route 63 (SR 63). Based on historic aerials Wetland 7 was constructed after 2000 in conjunction with the development of the residential community located south of SR 63. Wetland 7 lacked any direct connection to jurisdictional waters and therefore should be considered a non-jurisdictional 'waters of the State' under the current Rapanos guidance. The ORAM score for Wetland 7 was 21, categorizing it as a Category 1, or low quality wetland.

Dominant vegetation within Wetland 7 included Black Willow (*Salix nigra*, OBL), and Common Reed (*Phragmites australis*, FACW). The soil within Wetland 7 was mapped as Eden silty clay loam (EcE2), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. Primary indicators of hydrology included Saturation (A3), and secondary indicators of hydrology observed included Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), and the FAC-Neutral Test (D5).

Wetland 8 (0.28 acres within the Study Area)

Wetland 8 was an emergent wetland is located within depressional area between a residential community and North Main Street. Based on historic aerials Wetland 8 was constructed prior to 2000 in conjunction with the development of the residential community located south of SR 63. Wetland 8 lacked any direct connection to jurisdictional waters and therefore should be considered a non-jurisdictional 'waters of the State' under the current Rapanos guidance. The ORAM score for Wetland 8 was 22, categorizing it as a Category 1, or low quality wetland.

Dominant vegetation within Wetland 8 included Narrow-Leaf Cat-Tail (*Typha angustifolia*, OBL). In addition, non-dominant vegetation observed included Common Fox Sedge (*Carex vulpinoidea*,

FACW), Chufa (*Cyperus esculentus*, FACW), and Blunt Spike-Rush (*Eleocharis obtusa*, OBL). The soil within Wetland 8 was mapped as Dana silt loam (Da), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. Primary indicators of hydrology included Saturation (A3), and secondary indicators of hydrology observed included Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), and the FAC-Neutral Test (D5).

Stream 1 (Millers Creek) (548 Linear Feet within the Study Area)

Millers Creek (Stream 1) was a perennial stream that flowed northwest through the project study area. Stream 1 was a natural channel; no recent modifications were observed within the survey reach. This stream was at base flow conditions at the time of the stream survey. The dominant substrates were gravel, silt, and silt. The OHWM width was fifteen (15) feet and depth was three feet. The maximum pool depth observed was greater than three feet. The Millers Creek flows into Shaker Creek which flows into Dicks Creek, Dicks Creek discharges into the Great Miami River, a traditional navigable water (TNW). Due to this connection, this stream should be considered a jurisdictional water of the United States. The QHEI score for Stream 1 was 46, categorizing the stream as a Warm Water Habitat.

Stream 2 (UNT to Miller Creek) (260 Linear Feet within the Study Area)

Stream 2 was an ephemeral stream that flowed north from Wetland 6 through the project study area. Stream 2 was considered to be recovering from past modifications. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were artificial riprap, and silt. Bank Full width was 3 to 4 feet and depth was one foot. The maximum pool depth observed was less than 5 centimeters. Stream 2 flows into Millers Creek, a Relatively Permanent Water (RPW) north of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 2 was 32, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Stream 3 (UNT to Miller Creek) (140 Linear Feet within the Study Area)

Stream 3 was an intermittent stream that flowed northwest through the project study area. Stream 3 was considered to be recovering from past modifications. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were artificial riprap, and silt. Bank Full width was 3 to 4 feet and depth was one foot. The maximum pool depth observed was less than 5 centimeters. Stream 3 flows into Millers Creek, a Relatively Permanent Water (RPW) north of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 3 was 30, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Pond 1 (3.4 acres within the Study Area)

Pond 1 was an upland man-made, excavated retention basin associated with recently constructed commercial/industrial facilities located within the eastern portion of the study area. Pond 1 flows through a culvert beneath Gateway Boulevard into Wetland 1 which ultimately discharges into Millers Creek. Due to this connection, this stream should be considered a jurisdictional water of the United States.

Pond 2 (0.08 acres within the Study Area)

Pond 2 was an upland man-made, excavated retention basin associated with nearby commercial/industrial facilities located south of SR 63. Pond 2 drains into the City of Monroe stormwater system and therefore should be considered a non-jurisdictional 'waters of the State' under the current Rapanos guidance.

Pond 3 (0.50 acres within the Study Area)

Pond 3 was an upland man-made, excavated retention basin associated with nearby commercial/industrial facilities located south of Lebanon Street. Pond 3 drains into the City of Monroe stormwater system and therefore should be considered a non-jurisdictional 'waters of the State' under the current Rapanos guidance.

4.3 Endangered, Threatened and Rare Species

The potential for listed species known to occur within Butler and Warren Counties were evaluated based on the habitat observed within the Study Area. In addition, high quality natural communities and significant natural habitat areas were documented if encountered (Appendix D). A walking survey of the Study Area was performed in which all observed Endangered, Threatened and Rare (ETR) species or specific known special habitats were noted. Coordination with the U.S. Fish and Wildlife Service (USFWS) and Ohio Department of Natural Resources (ODNR) Division of Wildlife occurred as it related to the Natural Heritage Database search results for the Study Area.

Tables summarizing the results of ETR species as they relate to the habitat observed within the Study Area are included with this report. Results of the Natural Heritage Database review (from the ODNR) along with suggested recommendations and/or required agency coordination for risk management purposes are included in Section 6. Correspondence from USFWS and ODNR's Division of Wildlife is within Appendix D.

4.3.1 Bat Roost Habitat

The Indiana Bat (*Myotis sodalis*, federally endangered) and Northern Long-eared Bat (*Myotis septentrionalis*, federally threatened) are protected under the Endangered Species Act, which is overseen by the USFWS. Typical guidance from USFWS regarding potential bat roost trees is avoidance of cutting trees from April until October. The Study Area was assessed for potential bat roosting habitat with respect to any indicated clearing activities. Potential bat roost trees include dead or dying trees (including live shagbark hickories) with at least 10-percent exfoliating bark, a diameter at breast height (DBH) of at least 3 inches, and solar exposure for maternity roost trees (the tree is on a wooded edge or in a canopy gap). If applicable, correspondence from ODNR regarding Indiana Bat and Northern Long-eared Bat is included within Appendix D.

Suitable bat roost habitat was observed within wooded the portions of the Todhunter to Nickel project survey area located outside of the existing maintained right-of-way (ROW). Specific areas should be evaluated before any tree clearing takes place.

5 Jurisdictional Analysis

5.1 U.S. Army Corps of Engineers

The USACE has authority over the discharge of fill or dredged material into "waters of the U.S.". This includes authority over any filling, mechanical land clearing, or construction activities that occur within the boundaries of any "waters of the U.S." A permit must be obtained from the USACE before any of these activities occur. Permits can be divided into two general categories: Individual Permits and Nationwide Permits.

Individual Permits are required for projects that do not fall into one of the specific Nationwide Permits (NWP) or are deemed to have significant environmental impacts. These permits are much more difficult to obtain and receive a much higher level of regulatory agency and public scrutiny and may require several months to more than a year for processing.

Nationwide Permits (NWP) have been developed for projects that meet specific criteria and are deemed to have minimal impact on the aquatic environment. There are currently 52 Nationwide Permits for qualifying activities with 31 Nationwide Permit General Conditions that must be satisfied in order to receive NWP consideration from the USACE.

5.2 Ohio Environmental Protection Agency

The OEPA is responsible for issuing Clean Water Act (CWA) Section 401 permits known as Water Quality Certifications (WQC) for all impacts to "waters of the State of Ohio." This includes authority over any dredging, filling, mechanical land clearing, impoundments or construction activities that occur within the boundaries of any "waters of the State," including those isolated waters not otherwise regulated by the USACE.

The OEPA issues Section 401 WQC in conjunction with the USACE' Section 404 permits. A §401 Water Quality Certification must be received before the USACE can issue any §404 Department of the Army Permit. The OEPA must issue Individual §401 WQC for all Individual §404 Permits.

Water quality certification may be granted, without notification to the OEPA, if the project falls under the NWP limitations described above. In order to qualify for this granted certification, all prior-authorized and *de minimis* Ohio State Certification General Limitations and Conditions as published by the OEPA must be satisfied.

The OEPA also requires notification for all impacts to isolated wetlands, which includes a permit application and mitigation plan pursuant to Section 6111 of Ohio Revised Code (ORC).

6 Summary and Conclusion

6.1 Summary

Cardno inspected the 5680 - Todhunter to Nickel Study Area on May 31, 2016 and June 6-7, 2016.

6.1.1 Wetlands and Waterways

Three streams, eight emergent wetlands, and three ponds were identified within the 5680 Todhunter to Nickel Study Area.

Table 6-1 Features Identified within the 5680 - Todhunter to Nickel Project Study Area

Feature Name	USGS/ NWI Identified	Feature Class	Regulatory Status[1]	Riffles / Pools	Dimensions (ft)		Substrate	QHEI/HHEI/ ORAM Score	Linear Footage (LF)	Acreage (AC)
					Width	Depth				
Wetland 1	No	PEM	Jurisdictional	N/A	N/A	N/A	N/A	31	N/A	6.78
Wetland 2	No	PEM	Non-Jurisdictional	N/A	N/A	N/A	N/A	11	N/A	0.08
Wetland 3	No	PEM	Non-Jurisdictional	N/A	N/A	N/A	N/A	11	N/A	0.02
Wetland 4	No	PEM	Non-Jurisdictional	N/A	N/A	N/A	N/A	13	N/A	0.02
Wetland 5	No	PEM	Jurisdictional	N/A	N/A	N/A	N/A	15	N/A	0.38
Wetland 6	No	PEM	Jurisdictional	N/A	N/A	N/A	N/A	20	N/A	0.09
Wetland 7	No	PEM	Non-Jurisdictional	N/A	N/A	N/A	N/A	21	N/A	0.67
Wetland 8	No	PEM	Non-Jurisdictional	N/A	N/A	N/A	N/A	22	N/A	0.28
Stream 1	Yes	Perennial	Jurisdictional	Yes	15	3	G-Sa-Si	46	548	0.15
Stream 2	No	Ephemeral	Jurisdictional	Yes	3-4	1	G-Sa-Si	32	260	0.02
Stream 3	Yes	Intermittent	Jurisdictional	Yes	3-4	1	Art-Si	30	140	0.01
Pond 1	Yes	PUB	Jurisdictional	N/A	N/A	N/A	N/A	N/A	N/A	3.40
Pond 2	No	PUB	Jurisdictional	N/A	N/A	N/A	N/A	N/A	N/A	0.50
Pond 3	No	PUB	Non-Jurisdictional	N/A	N/A	N/A	N/A	N/A	N/A	0.08
Totals			**Streams**		**Ephemeral**				**260 LF**	**0.02**
					Intermittent				**140 LF**	**0.01**
					Perennial				**548 LF**	**0.15**
			Wetlands		**PEM**	**JD**			**---**	**7.25**
						Non-JD			**---**	**1.07**
			Ponds		**Jurisdictional**				**---**	**3.90**
					Non-Jurisdictional				**---**	**0.08**
			Waterbodies Total		**Jurisdictional**				**948 LF**	**11.33**
					Non-Jurisdictional				**---**	**1.15**

[1] Regulatory Status is based on our "professional judgment" on experience, however the USACE makes the final determination.

6.1.2 Endangered, Threatened, and Rare Species

Several sources of information were consulted to further define the potential habitat of listed species that occur within the county of the Study Area. Tables 1 in Appendix D contain lists of the ETR species known to occur within Butler and Warren Counties and their potential to occur within the Study Area based on their habitat requirements and observations during the field survey (Appendix D).

Correspondence from the ODNR Division of Wildlife for Butler and Warren Counties (May 6, 2016) identified no ETR species documented within one mile of the Study Area.

6.1.3 Indiana Bat and Northern Long-eared Bat Roost Habitat

The entire Study Area was walked to identify potential Indiana Bat and Northern Long-eared Bat roost trees. Based on our field inspection and our best professional judgment, there are potential roost or maternity roost trees suitable for harboring Indiana Bats and Northern Long-eared Bats within the Study Area. Suitable bat roost habitat was observed within the wooded areas located outside the existing ROW, including the wooded riparian corridor of Stream 1 and 2.

In the event tree clearing activity becomes a work priority within the Study Area, it is recommended that a field inspection be performed within the clearing limits to ensure that potential bat habitat has not developed.

The USFWS is the regulatory authority that makes the final determination as to the status of the Indiana Bat and Northern Long-eared Bat in the Study Area. A letter based on the field observations was submitted to the USFWS for concurrence on August 19, 2016.

6.2 Conclusion

A permit must be obtained from the USACE and the OEPA prior to any filling, dredging, or mechanical land clearing that occurs within the boundaries of any 'waters of the U.S.' or 'waters of the State'.

While this report represents our best professional judgment based on our knowledge and experience, it is important to note that the Huntington District of the U.S. Army Corps of Engineers has final discretionary authority over all jurisdictional determinations of 'waters of the U.S.' including wetlands under Section 404 of the CWA in this region. It is therefore, recommended that a copy of this report be furnished to the Huntington District of the U.S. Army Corps of Engineers to confirm the results of our findings.

7 References

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DUKE ENERGY
TODHUNTER TO NICKEL

FIGURES

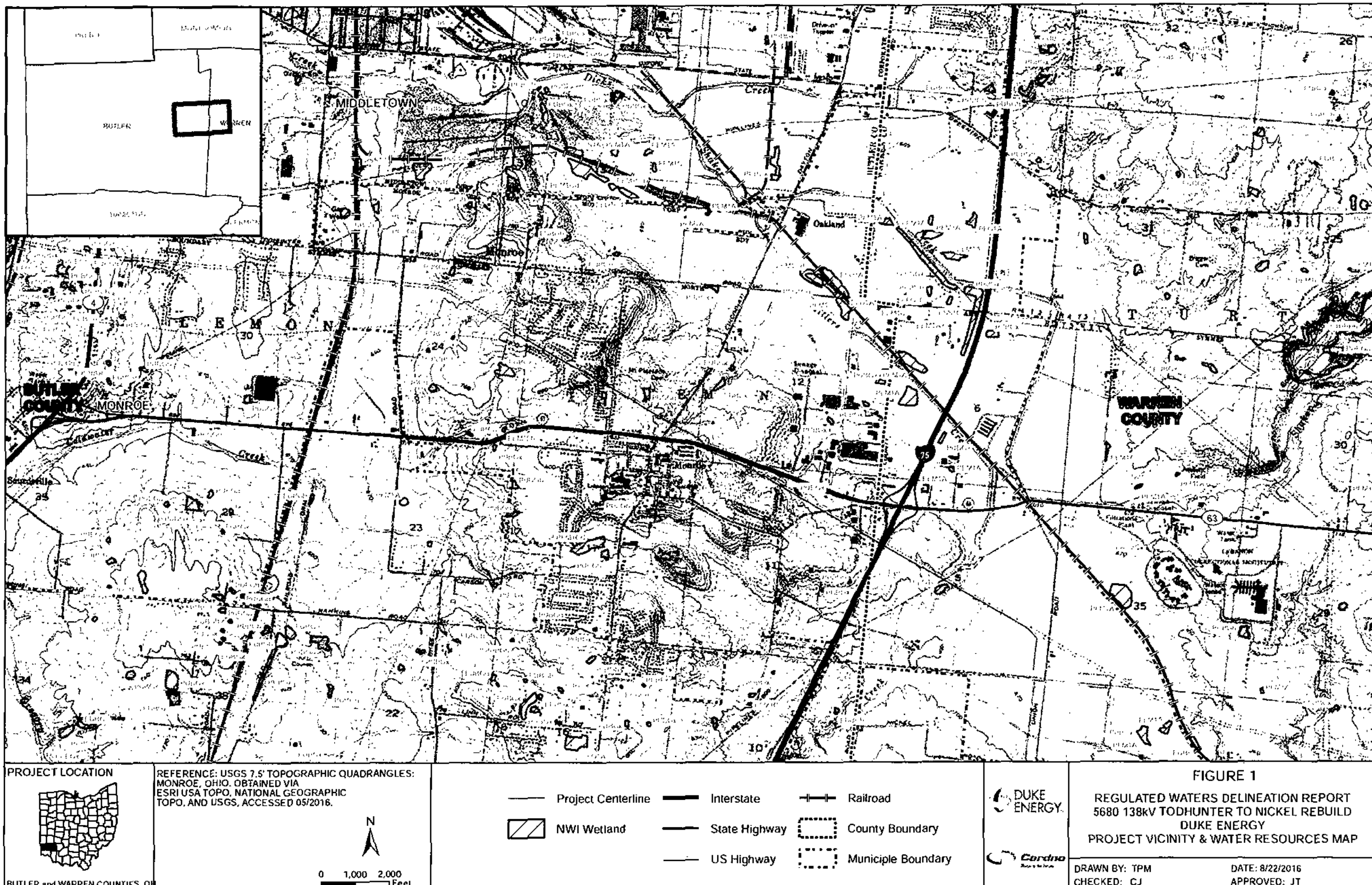

FIGURE 1

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
PROJECT VICINITY & WATER RESOURCES MAP

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\\cardno.corp\Global\US\Shared\CJFNProjects\Projects\15\156\156720M_DukeEnergy9193\M23_SOW11_TodhuntertoNickel_PO9207\GIS\MXD\Delineation\D1_Vicinity_nwi.mxd

FRESHWATER WETLAND CLASSIFICATION

P—PALUSTRINE

- **RB ROCK BOTTOM**
  1) Bedrock
  2) Rubble
- **UB UNCONSOLIDATED BOTTOM**
  1) Cobble/Gravel
  2) Sand
  3) Mud
  4) Organic
- **AB AQUATIC BED**
  1) Algal
  2) Aquatic Moss
  3) Rooted Vascular
  4) Floating Vascular
  5) UNK Submergent
  6) UNK Surface
- **US UNCONSOLIDATED SHORE**
  1) Cobble/Gravel
  2) Sand
  3) Mud
  4) Organic
  5) Vegetated
- **ML MOSS-LICHEN**
  1) Mosses
  2) Lichen
- **EM EMERGENT**
  1) Persistent
  2) Nonpersistent
- **SS SHRUB SCRUB**
  1) Broad Leaf Decid.
  2) Needle Leaf Decid.
  3) Broad Leav Evergr.
  4) Needle Leaf Evergr.
  5) Dead
  6) Deciduous
  7) Evergreen
- **FO FORESTED**
  1) Broad Leaf Decid.
  2) Needle Leaf Decid.
  3) Broad Leav Evergr.
  4) Needle Leaf Evergr.
  5) Dead
  6) Deciduous
  7) Evergreen
- **OW OPEN WATER**
  Unknown Bottom

R—RIVERINE

1 TIDAL | 2 LOWER PERENNIAL | 3 UPPER PERENNIAL | 4 INTERMITTENT | 5 UNKNOWN PERENNIAL

- **RB ROCK BOTTOM**
  1 Bedrock
  2 Rubble
- **UB UNCONSOLIDATED BOTTOM**
  1 Cobble/Gravel
  2 Sand
  3 Mud
  4 Organic
- **AB AQUATIC BED**
  1 Algal
  2 Aquatic Moss
  3 Rooted Vascular
  4 Floating Vascular
  5 UNK Submergent
  6 UNK Surface
- **US UNCONSOLIDATED SHORE**
  1 Cobble/Gravel
  2 Sand
  3 Mud
  4 Organic
  5 Vegetated
- **SB STREAMBED ***
  1 Bedrock
  2 Rubble
  3 Cobble-Gravel
  4 Sand
  5 Mud
  6 Organic
  7 Vegetated
- **EM EMERGENT ****
  1 Persistent
  2 Non-persistent
- **RS ROCKY SHORE**
  1 Bedrock
  2 Rubble
- **OW OPEN WATER**
  Unknown Bottom

MODIFYING TERMS

In order to more adequately describe wetland and aquatic habitats water regime, water chemistry, soil of special modifiers may be applied.

WATER REGIME		*WATER CHEMISTRY*		*SOIL*	*SPECIAL MODIFIERS*
NON-TIDAL		INLAND SALINITY	pH MODIFIERS FOR FRESHWATER		
A Temporarily Flooded	J Intermittently Flooded	7 Hypersaline	a Acid	g Organic	b Beaver
B Saturated	K Artificially Flooded	8 Eusaline	t Circumneutral	n Mineral	d Partially Drained/Ditched
C Seasonally Flooded	W Intermittently Flooded/ Temporary	9 Mixosaline	i Alkaline		f Farmed
D Seasonally Flooded/ Well-Drained	Y Saturated/Semipermanent/ Seasonal	0 Fresh			h Diked/Impounded
E Seasonally Flooded/Saturated	Z Intermittently Exposed/ Permanent				r Artificial Substrate
F Semipermanently Flooded	U Unknown				s Spoil
G Intermittently Exposed					x Excavated
H Permanently Flooded					

Dominance types must be added by users.

Classification of wetland and deepwater habitats of the U.S. Cowardin et. al. 1979 as modified for national wetland inventory mapping conventions.

Figure 2: NWI KEY

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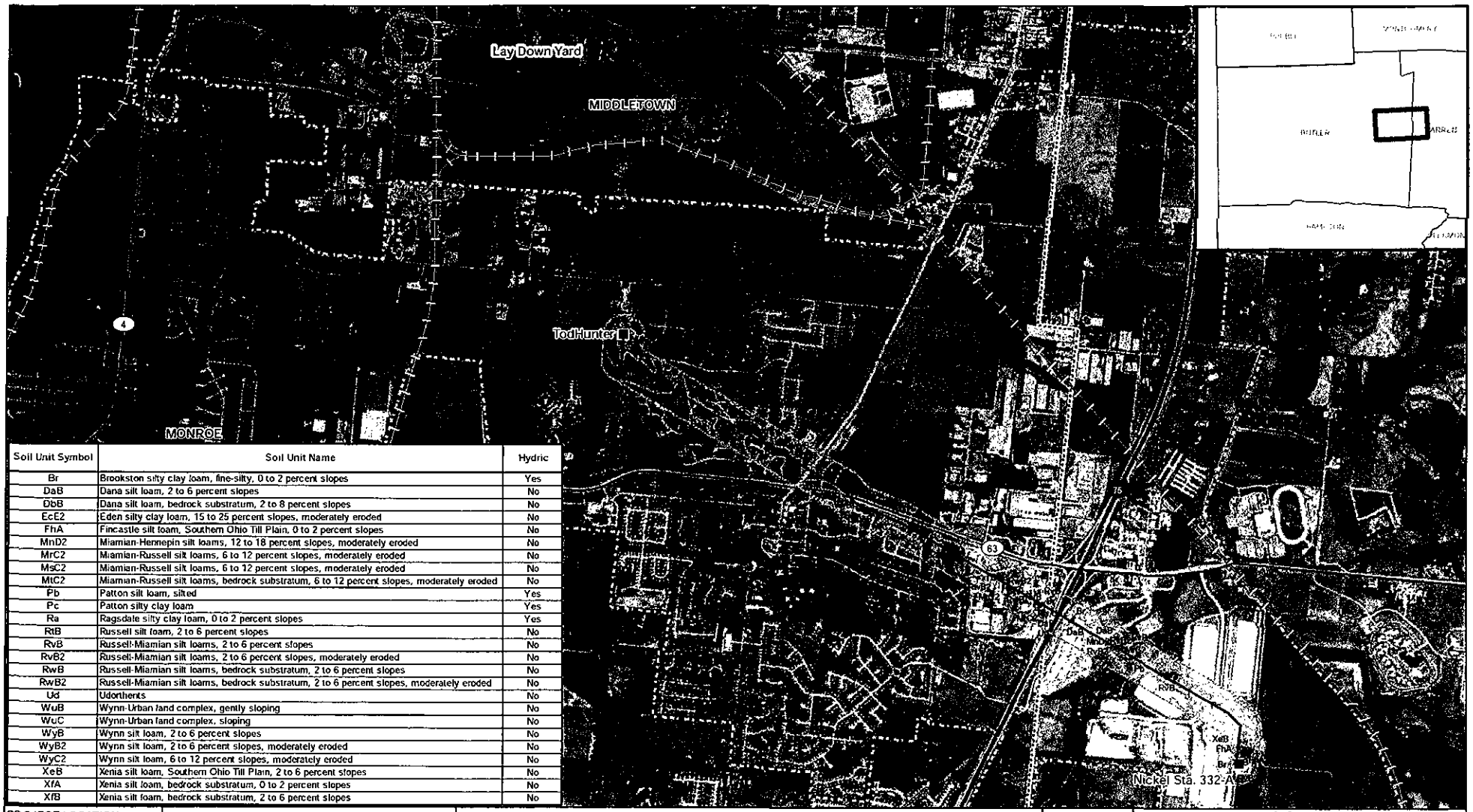

Soil Unit Symbol	Soil Unit Name	Hydric
Br	Brookston silty clay loam, fine-silty, 0 to 2 percent slopes	Yes
DaB	Dana silt loam, 2 to 6 percent slopes	No
DbB	Dana silt loam, bedrock substratum, 2 to 8 percent slopes	No
EcE2	Eden silty clay loam, 15 to 25 percent slopes, moderately eroded	No
FhA	Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	No
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	No
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	No
MsC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	No
MtC2	Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, moderately eroded	No
Pb	Patton silt loam, silted	Yes
Pc	Patton silty clay loam	Yes
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes	Yes
RtB	Russell silt loam, 2 to 6 percent slopes	No
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	No
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	No
RwB	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes	No
RwB2	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded	No
Ud	Udorthents	No
WuB	Wynn-Urban land complex, gently sloping	No
WuC	Wynn-Urban land complex, sloping	No
WyB	Wynn silt loam, 2 to 6 percent slopes	No
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	No
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	No
XeB	Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	No
XfA	Xenia silt loam, bedrock substratum, 0 to 2 percent slopes	No
XfB	Xenia silt loam, bedrock substratum, 2 to 6 percent slopes	No

PROJECT LOCATION

BUTLER and WARREN COUNTY, OH

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: MONROE, OHIO. OBTAINED VIA ESRI USA TOPO, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSED 05/2016.

N

0 1,000 2,000 Feet

Project Centerlin
Existing Facility
US Highway
Hydric Soil Type
County Boundary
Interstate
Soil Type
Municipal Boundary
State Highway
Railroad

DUKE ENERGY.

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FIGURE 3

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
SOIL SURVEY

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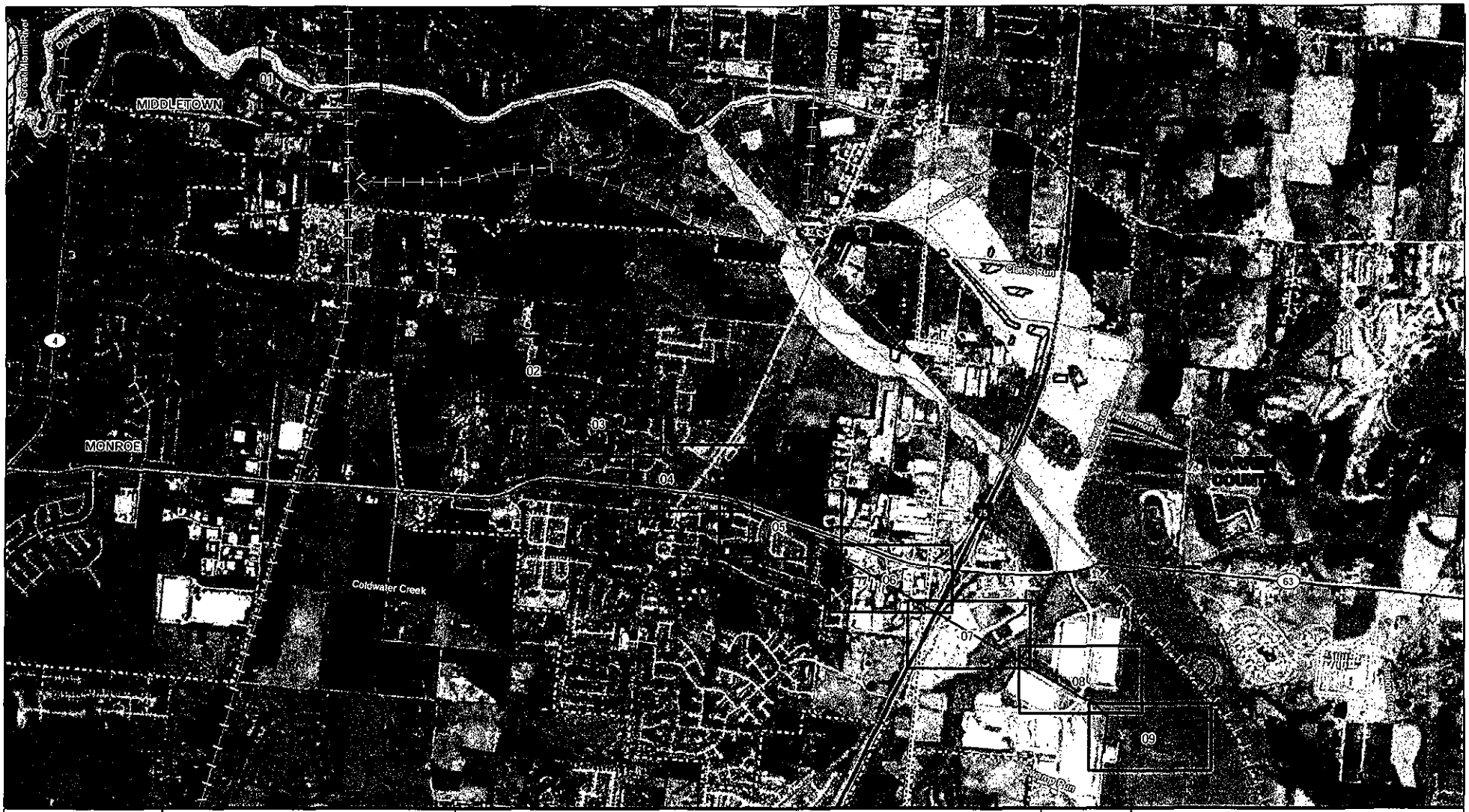

PROJECT LOCATION

BUTLER & WARREN COUNTIES, OHIO

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 1,000 2,000 Feet

- Project Centerline
- Interstate
- US Highway
- State Highway
- Railroad
- NHD Flowline
- 100-Year Floodplain
- Floodway
- NWI Wetland
- County Boundary
- Municiple Boundary
- Sheet Index

DUKE ENERGY.

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FIGURE: 4

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION FIGURE INDEX SHEET

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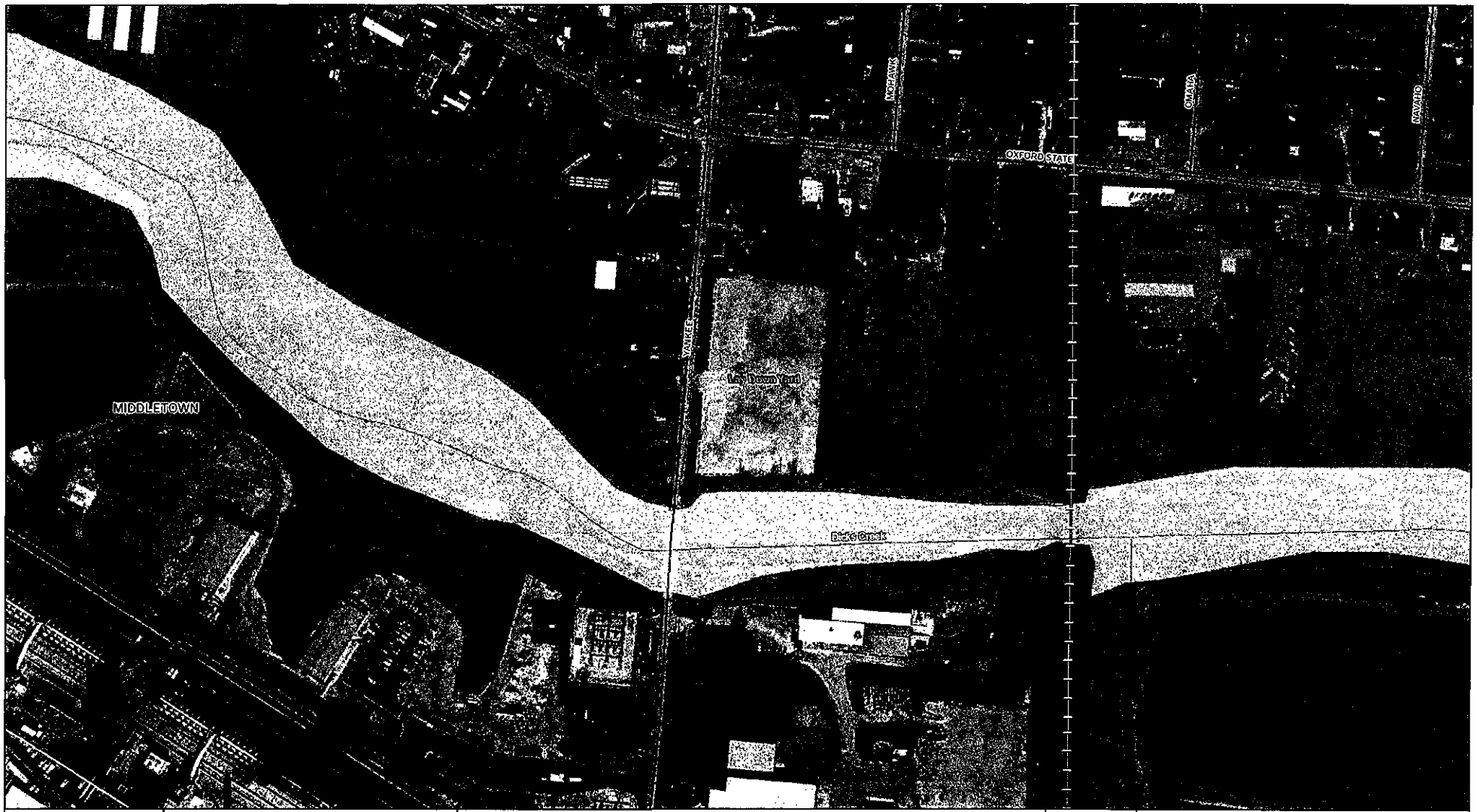

SHEET INDEX

01

02 03 04 05 06 07 08 09

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Project Centerline
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Local Road
- Railroad
- NHD Flowline
- Study Area
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municiple Boundary

DUKE ENERGY.

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FIGURE: 4.01

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION

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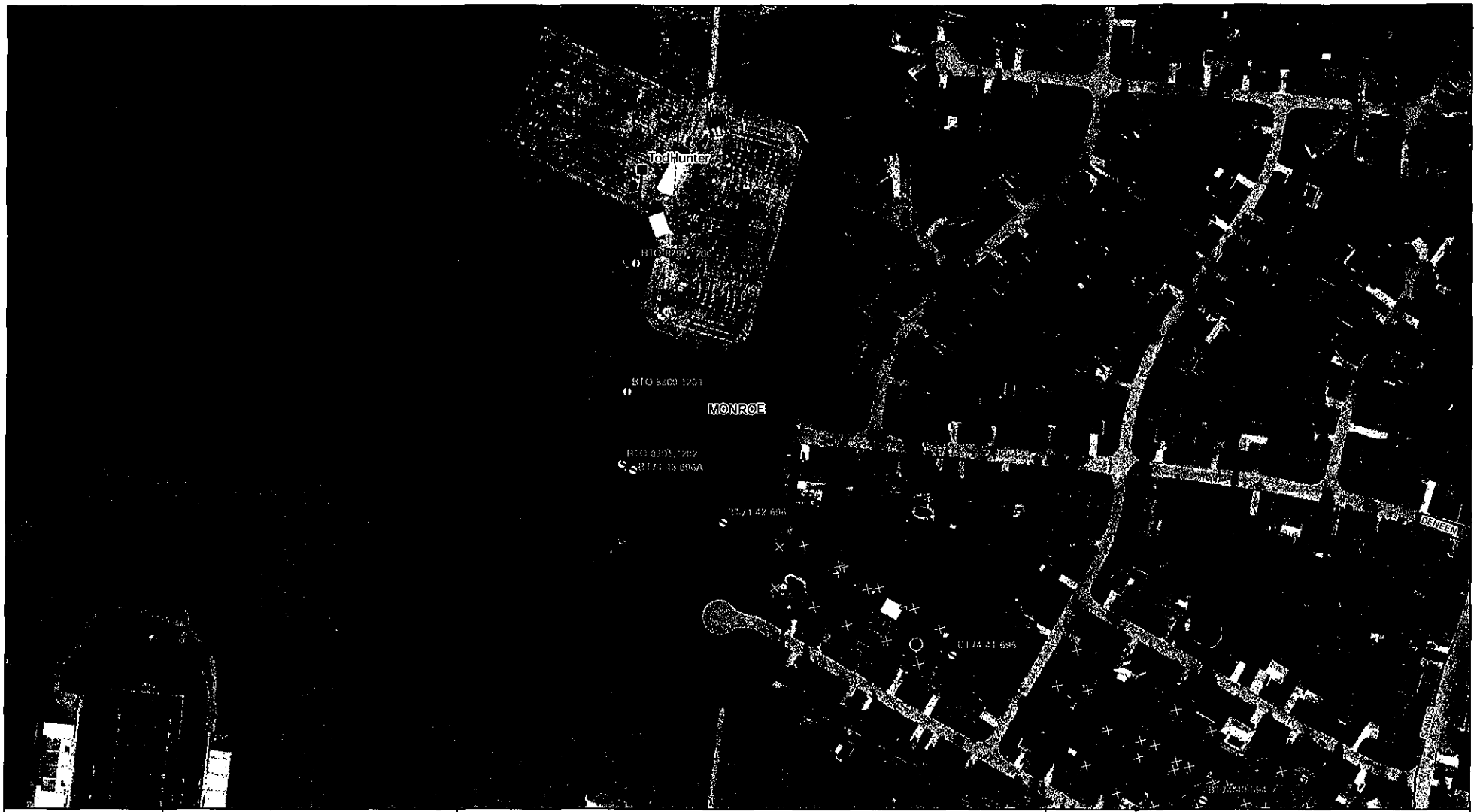

SHEET INDEX
01
02 03 04 05 06 07 08 09

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Project Centerline
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Local Road
- Railroad
- NHD Flowline
- Study Area
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municiple Boundary

DUKE ENERGY.

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FIGURE: 4.02

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION

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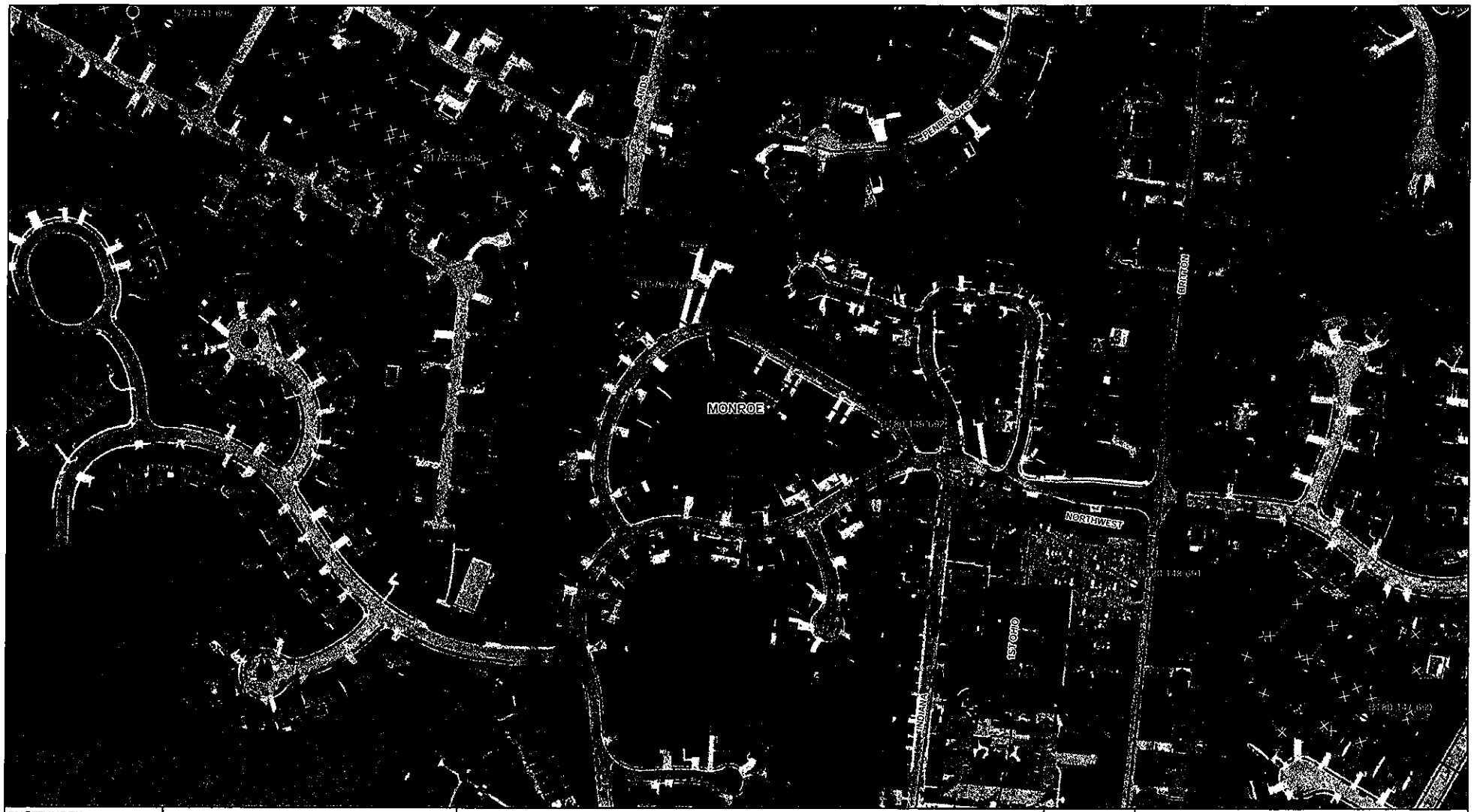

SHEET INDEX
03
02 03 04 05 06 07 08 09

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Project Centerline
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Local Road
- Railroad
- NHD Flowline
- Study Area
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municiple Boundary

DUKE ENERGY.

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FIGURE: 4.03
REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION

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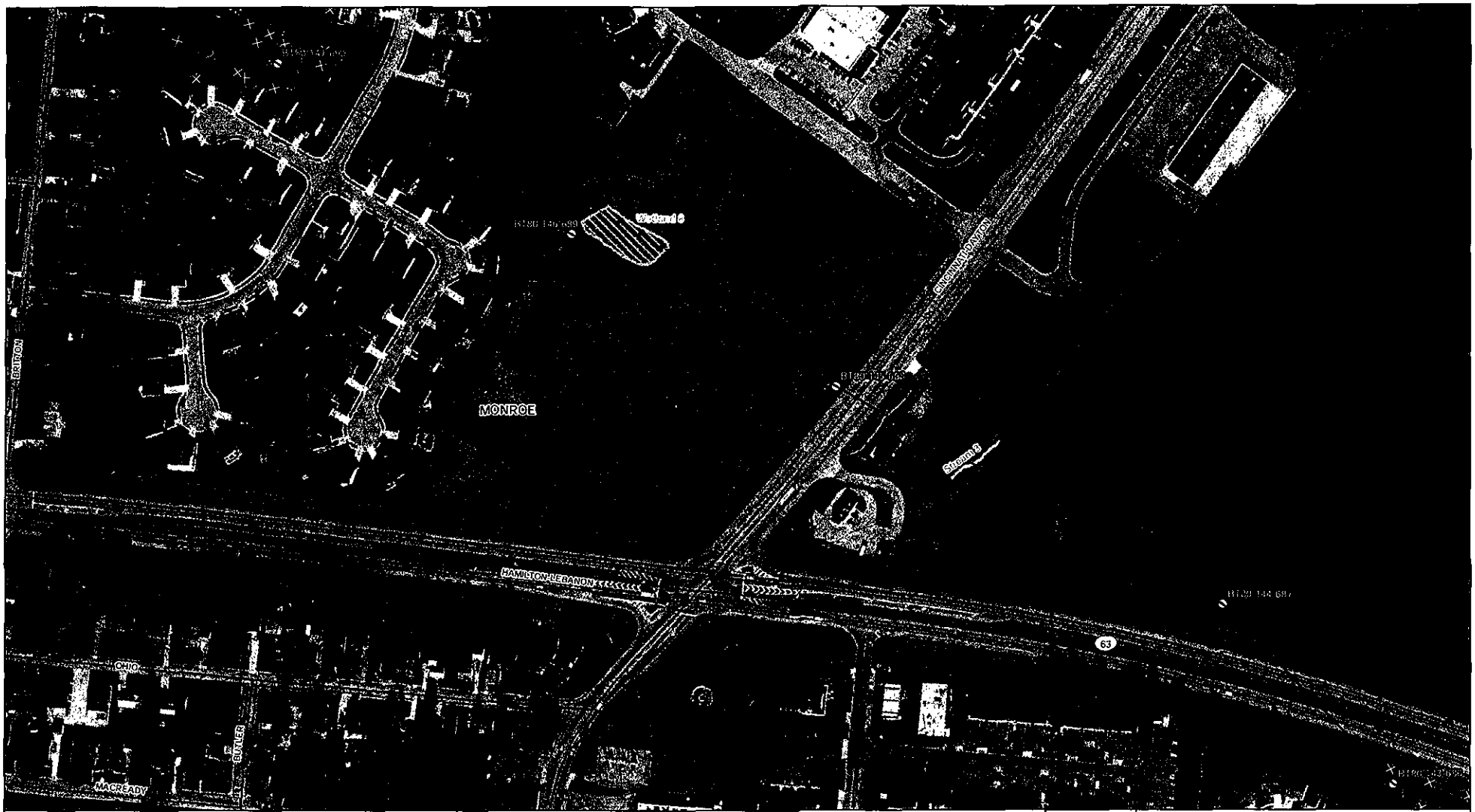

SHEET INDEX

01 02 03 04 05 06 07 08 09

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION. ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Project Centerline
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Local Road
- Railroad
- NHD Flowline
- Study Area
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municiple Boundary

DUKE ENERGY.

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FIGURE: 4.04

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION

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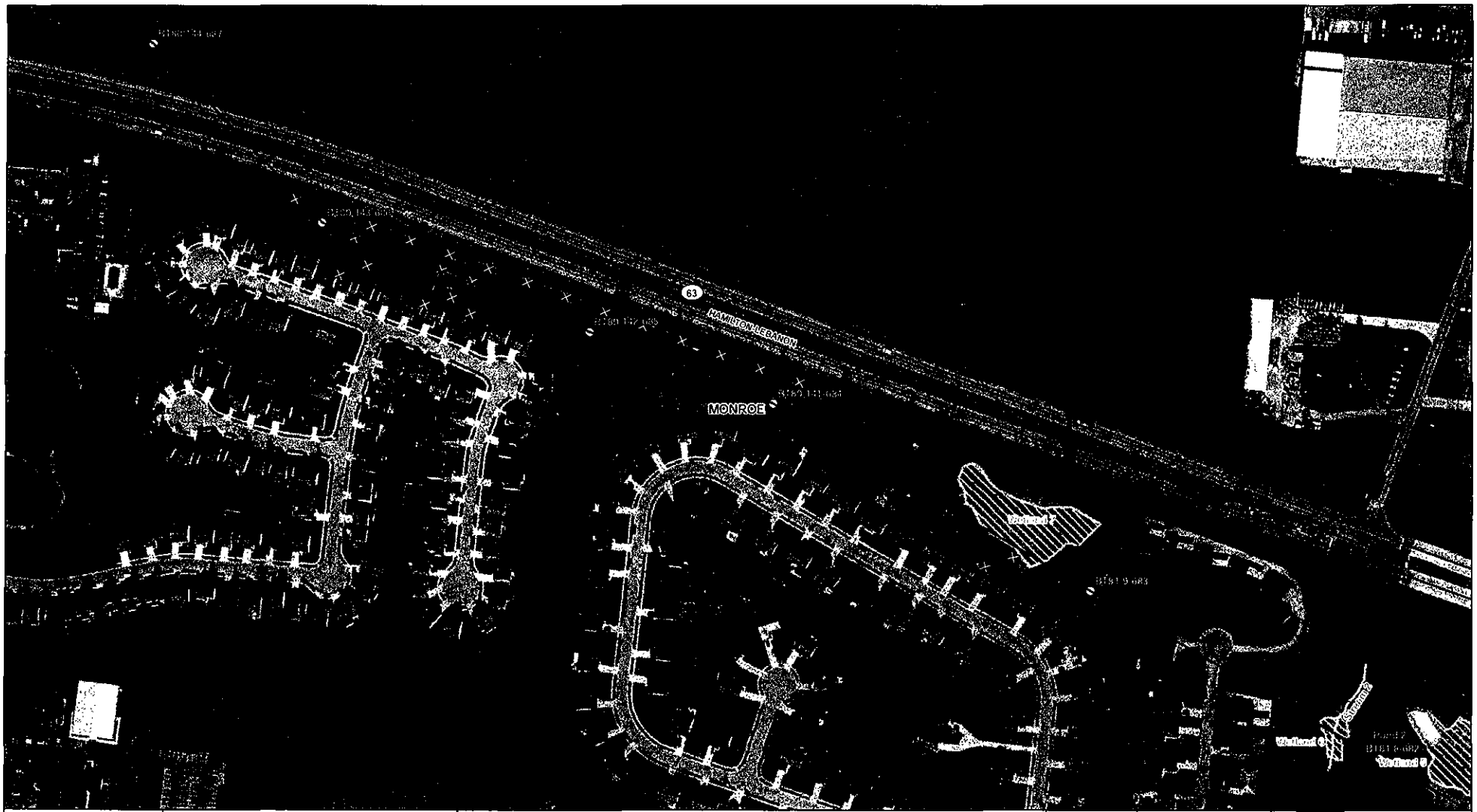


SHEET INDEX

01 02 03 04 05 06 07 08 09

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Project Centerline
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Local Road
- Railroad
- NHD Flowline
- Study Area
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municiple Boundary

DUKE ENERGY.

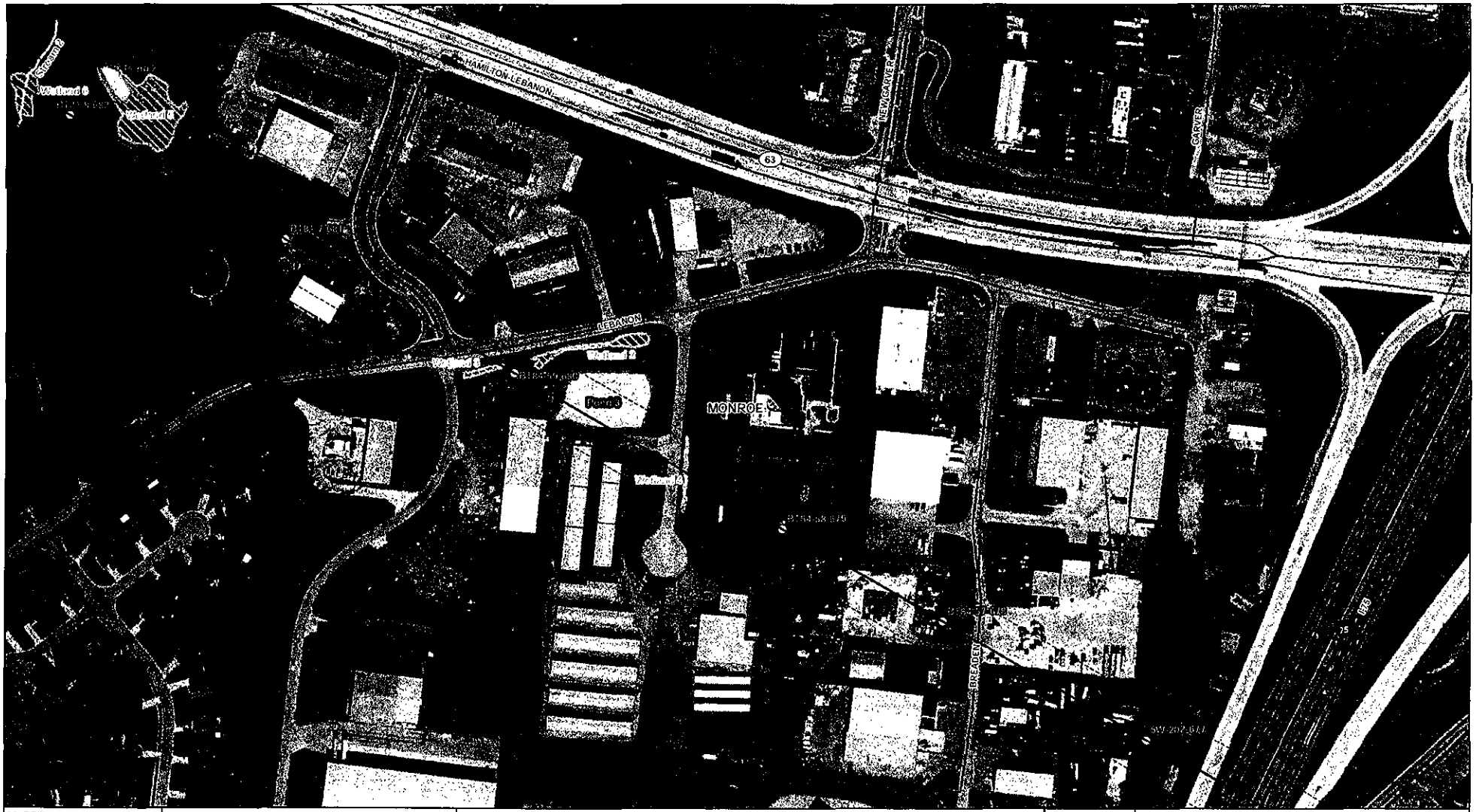
Cardno

FIGURE: 4.05

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION

DRAWN BY: TPM DATE: 8/22/2016
CHECKED: CJ APPROVED: JT

\\cardno.corp\Global\US\Shared\CJFNProjects\Projects\15\156\156720M_DukeEnergy9193\M23_SOW11_TodhuntertoNickel_PO9207\GIS\MXD\Delineation\D4_Delin-Set.mxd



SHEET INDEX

01 02 03 04 05 06 07 08 09

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Project Centerline
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Local Road
- Railroad
- NHD Flowline
- Study Area
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municiple Boundary

DUKE ENERGY.

Cardno

FIGURE: 4.06

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION

DRAWN BY: TPM DATE: 8/22/2016
CHECKED: CJ APPROVED: JT

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SHEET INDEX

01 02 03 04 05 06 07 08 09

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

Existing Facility	Delineated Stream	NHD Flowline	Open Water
Proposed Structure	Interstate	Study Area	Delineated Wetland
Existing Structure	State Highway	100-Year Floodplain	Municiple Boundary
Project Centerline	Local Road	Floodway	
Fence Line	Railroad		

DUKE ENERGY.

Cardno

FIGURE: 4.07

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION

DRAWN BY: TPM DATE: 8/22/2016
CHECKED: CJ APPROVED: JT

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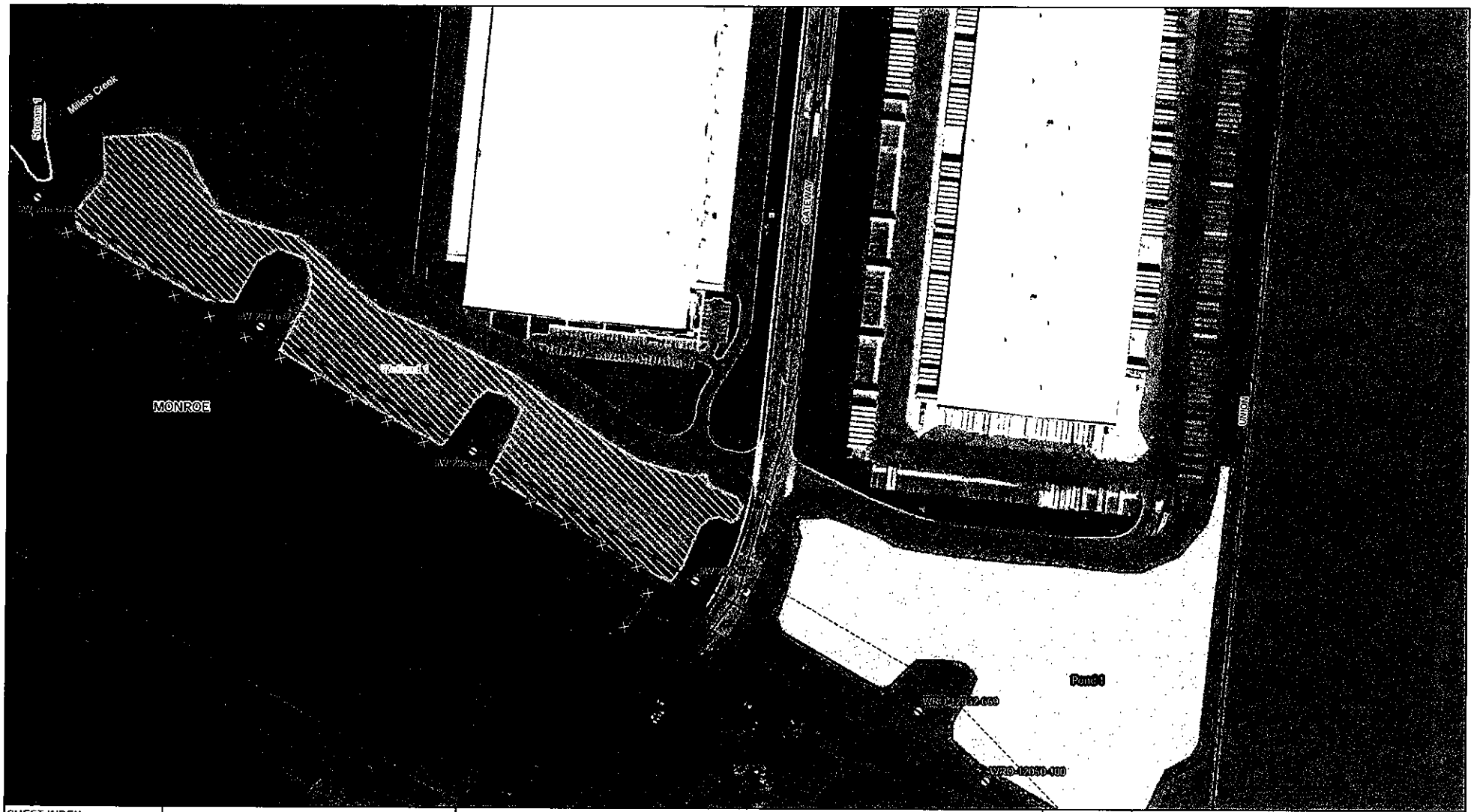

SHEET INDEX

01 02 03 04 05 06 07 08 09

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Project Centerline
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Local Road
- Railroad
- NHD Flowline
- Study Area
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municiple Boundary

DUKE ENERGY.

Cardno

FIGURE: 4.08
REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION

DRAWN BY: TPM DATE: 8/22/2016
CHECKED: CJ APPROVED: JT

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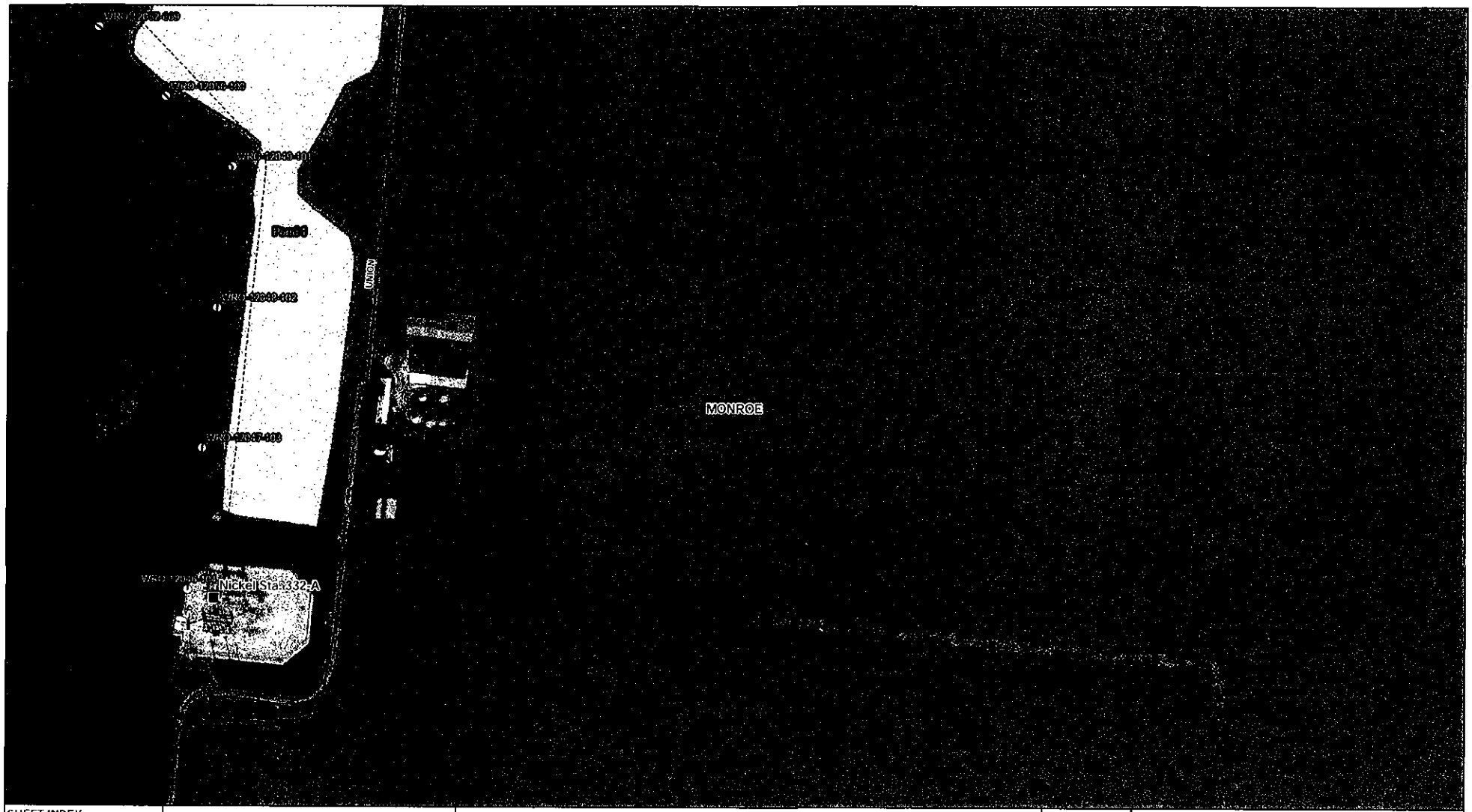

SHEET INDEX

01 02 03 04 05 06 07 08 09

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 06/2016

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Project Centerline
- Fence Line
- Delineated Stream
- Interstate
- State Highway
- Local Road
- Railroad
- NHD Flowline
- Study Area
- 100-Year Floodplain
- Floodway
- Open Water
- Delineated Wetland
- Municiple Boundary

DUKE ENERGY.

Cardno

FIGURE: 4.09

REGULATED WATERS DELINEATION REPORT
5680 138kV TODHUNTER TO NICKEL REBUILD
DUKE ENERGY
DELINEATION

DRAWN BY: TPM DATE: 8/22/2016
CHECKED: CJ APPROVED: JT

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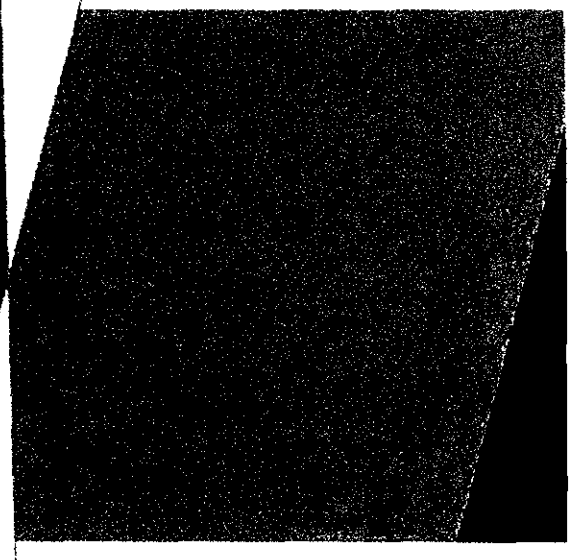
DUKE ENERGY
TODHUNTER TO NICKEL

APPENDIX

SITE PHOTOGRAPHS



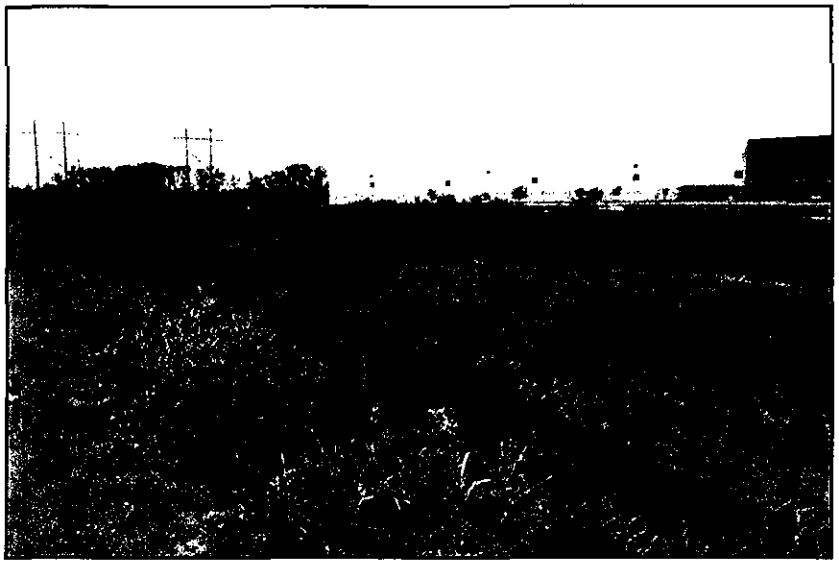


Photo 1: Overview of Wetland 1, facing north.

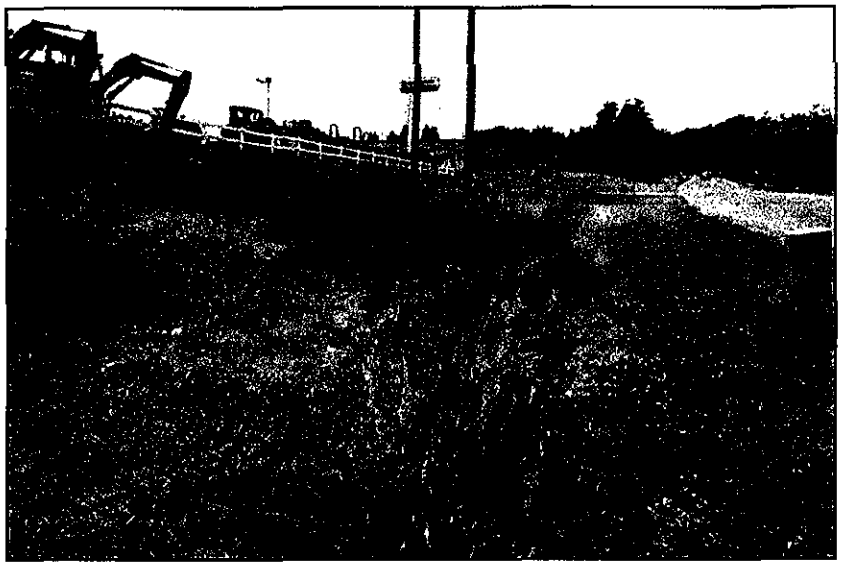


Photo 2: View of upland Wetland 2 , facing southwest.

Photo 3: View of Wetland 3, facing northeast.

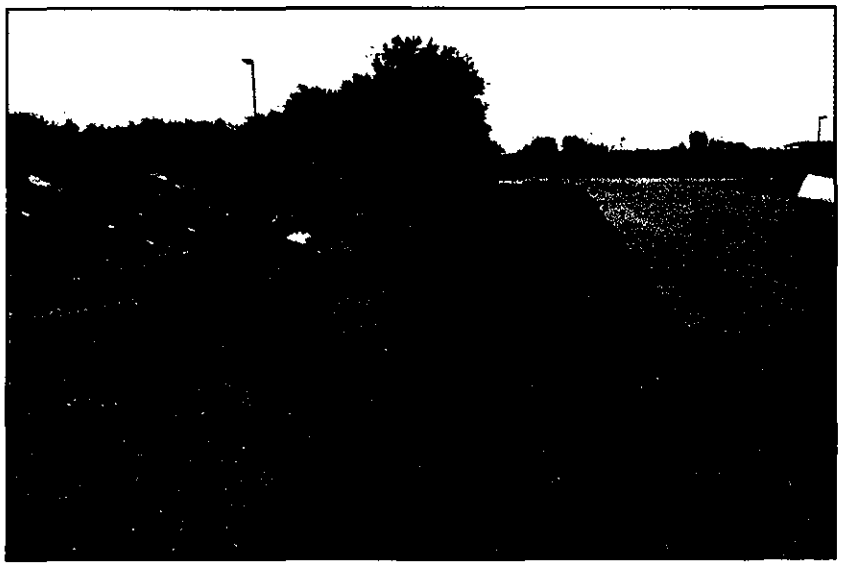


Photo 4: View of upland Wetland 4 , facing south

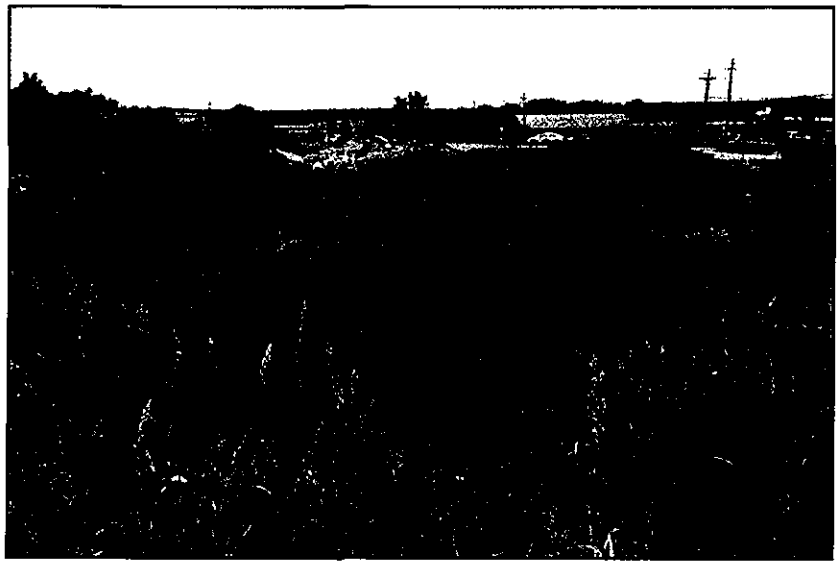


Photo 5: View of Wetland 5, facing north..

Photo 6: View Wetland 6, facing west.

Photo 7: View of Wetland 7, facing northwest.

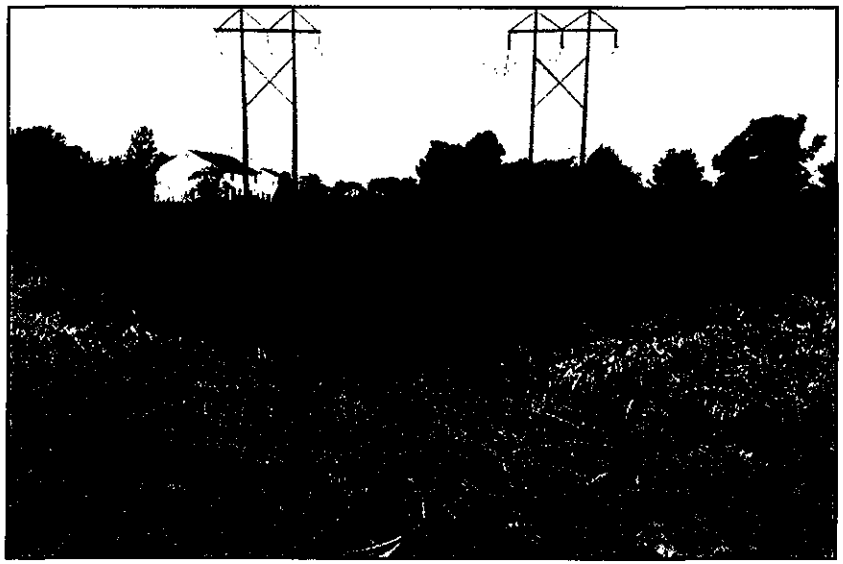


Photo 8: View of Wetland 8, facing northwest.

Photo 9: Overview of Stream 1 (Millers Creek), facing upstream.

Photo 10: View of Stream 2, facing downstream.

Photo 11: Overview of maintained ROW facing southeast.

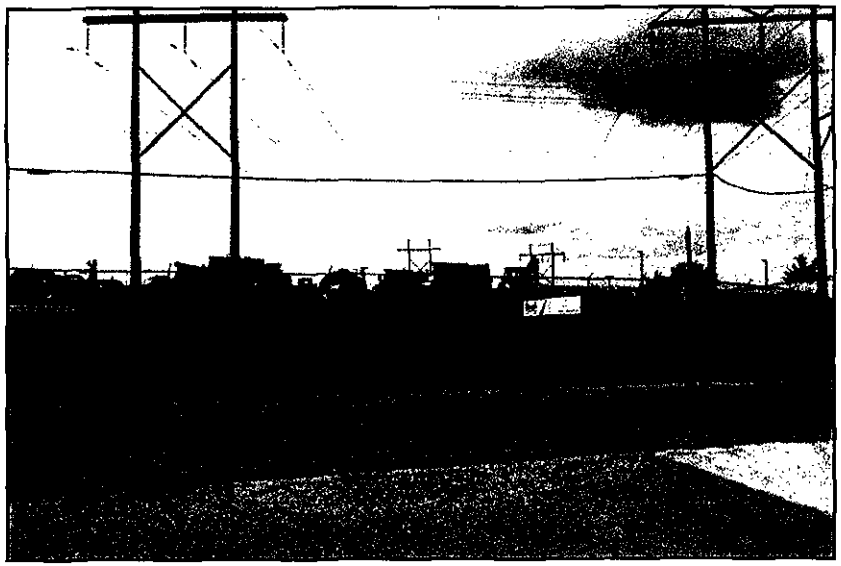
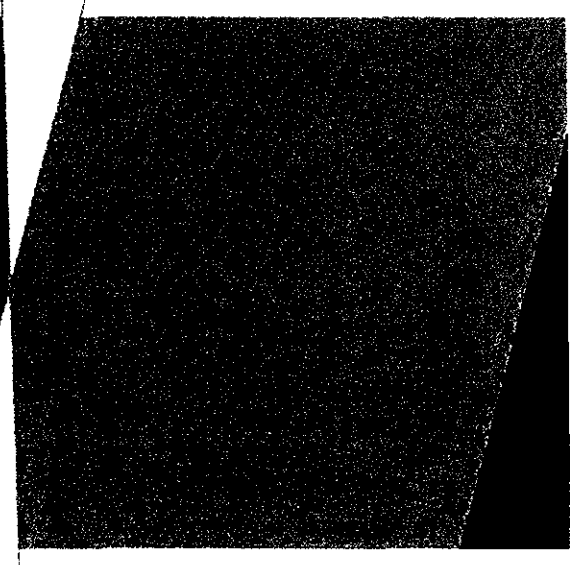


Photo 12: View of maintain ROW, facing northwest.

DUKE ENERGY
TODHUNTER TO NICKEL

APPENDIX

OHIO HHEI AND QHEI FORMS



Qualitative Habitat Evaluation Index Field Sheet

QHEI Score: 46

River Code: _____ **RM:** _____ **Stream:** Stream 1 - Millers Creek

Date: 5/31/2016 **Location:** Monroe, Ohio - Duke ROW near Prime Outlets

Scorers Full Name: Danielle K. Thompson **Affiliation:** Cardno

1.) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Estimate % present)

TYPE	Pool	Riffle		Pool	Riffle
☐ ☐ BLDR/SLBS (10)			☐ ☐ GRAVEL (7)	10	30
☐ ☐ BOULDER (9)	5		☐ ☐ SAND (6)	5	10
☐ ☐ COBBLE (8)	5		☐ ☐ BEDROCK (5)		
☐ ☐ HARDPAN (4)			☐ ☐ DETRITUS (3)		
☐ ☐ MUCK (2)			☐ ☐ ARTIFICIAL (0)		
☑ ☑ SILT (2)	75	60	NOTE: Ignore Sludge Originating From Point Sources		

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☐ 4 or More (2)
☑ 3 or Less (0)

COMMENTS: _____

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE))
☑ LIMESTONE (1)
☐ TILLS (1)
☐ WETLANDS (0)
☐ HARDPAN (0)
☐ SANDSTONE (0)
☐ RIP/RAP (0)
☐ LACUSTRINE (0)
☐ SHALE (-1)
☐ COAL FINES (-2)

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE))
SILT:
☑ SILT HEAVY (-2)
☐ SILT MODERATE (-1)
☐ SILT NORMAL (0)
☐ SILT FREE (1)
EMBEDDEDNESS:
☐ EXTENSIVE (-2)
☐ MODERATE (-1)
☐ NORMAL (0)
☐ NONE (1)

Substrate: 3 (Max 20)

2.) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure)	TYPE: Score All that Occur		AMOUNT: (Check ONLY One or Check 2 & AVERAGE)
_____ UNDERCUT BANKS (1)	2 POOLS >70 cm (2)	_____ OXBOWS, BACKWATERS (1)	☐ EXTENSIVE >75% (11)
1 OVERHANGING VEGETATION (1)	_____ ROOTWADS (1)	_____ AQUATIC MACROPHYTES (1)	☐ MODERATE 25-75% (7)
1 SHALLOWS (IN SLOW WATER) (1)	_____ BOULDERS (1)	1 LOGS AND WOODY DEBRIS (1)	☑ SPARSE 5-25% (3)
_____ ROOTMATS (1)	COMMENTS: _____		☐ NEARLY ABSENT <5%

Cover: 8 (Max 20)

3.) CHANNEL MORPHOLOGY (Check ONLY One per Category OR Check 2 & AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS / OTHER	
☐ HIGH (4)	☐ EXCELLENT (7)	☑ NONE (6)	☐ HIGH (3)	☐ SNAGGING	☐ IMPOUND
☑ MODERATE (3)	☐ GOOD (5)	☐ RECOVERED (4)	☑ MODERATE (2)	☐ RELOCATION	☐ ISLANDS
☐ LOW (2)	☑ FAIR (3)	☐ RECOVERING (3)	☐ LOW (1)	☐ CANOPY REMOVAL	☐ LEVEED
☐ NONE (1)	☐ POOR (1)	☐ RECENT OR NO RECOVERY (1)		☐ DREDGING	☐ BANK SHAPING
				☐ ONE SIDE CHANNEL MODIFICATIONS	

COMMENTS: _____

Channel: 14 (Max 20)

4.) RIPARIAN ZONE AND BANK EROSION (Check ONE box per bank OR Check 2 & AVERAGE per bank)

River Right Looking Downstream

RIPARIAN WIDTH (Per Bank) L	R	FLOOD PLAIN QUALITY (Past 100 ft Riparian) (Most Predominant Per Bank) L	R	BANK EROSION (Per Bank) L	R
☑ WIDE >50M (4)	☑	☐ FOREST, SWAMP (3)	☐	☐ CONSERVATION TILLAGE	☐ NONE / LITTLE (3)
☐ MODERATE 10-50M (3)	☐	☑ SHRUB OR OLD FIELD (2)	☑	☐ URBAN OR INDUSTRIAL	☑ MODERATE (2)
☐ NARROW 5-10M (2)	☐	☐ RESIDENTIAL, PARK, NEW FIELD (1)	☐	☐ OPEN PASTURE, ROW CROPS	☐ HEAVY / SEVERE (1)
☐ VERY NARROW <5M (1)	☐	☐ FENCED PASTURE (1)	☐	☐ MINING/CONSTRUCTION (0)	
☐ NONE (0)					

COMMENTS: _____

Riparian: 8 (Max 10)

5.) POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☑ >1m (6)
☐ 0.7-1m (4)
☐ 0.4-0.7m (2)
☐ 0.2-0.4m (1)
☐ <0.2m (pool = 0)

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ POOL WIDTH > RIFFLE WIDTH (2)
☑ POOL WIDTH = RIFFLE WIDTH (1)
☐ POOL WIDTH < RIFFLE WIDTH (0)

CURRENT VELOCITY (POOLS & RIFFLES!) (Check All that Apply)
☐ EDDIES (1)
☐ FAST (1)
☑ MODERATE (1)
☑ SLOW (1)
☐ TORRENTIAL (-1)
☐ INTERSTITIAL (-1)
☐ INTERMITTENT (-2)
☐ VERY FAST (1)

COMMENTS: _____

Pool/Current: 9 (Max 12)

CHECK ONE OR CHECK 2 & AVERAGE

RIFFLE DEPTH
☐ *BEST AREAS >10cm (2)
☐ BEST AREAS 5-10cm (1)
☐ BEST AREAS <5cm (RIFFLE=0)

RUN DEPTH
☐ MAX >50cm (2)
☐ MAX <50cm (1)

RIFFLE/RUN SUBSTRATE
☐ STABLE (e.g., Cobble, Boulder (2)
☐ MOD. STABLE (e.g., Large Gravel (1)
☐ UNSTABLE (Fine Gravel, Sand (0)

RIFFLE/RUN EMBEDDEDNESS
☐ NONE (2)
☐ LOW (1)
☐ MODERATE (0)
☐ EXTENSIVE (-1)

COMMENTS: _____ ☐ NO RIFFLE (Metric = 0)

Riffle/Run: 0 (Max 8)

Gradient: 4 (Max 10)

6.) GRADIENT (ft/mi): 52 **DRAINAGE AREA** (sq. mi.): 4.53 **%POOL:** 50 **%GLIDE:** 50 **%RIFFLE:** 0 **%RUN:** 0

*Best areas must be large enough to support a population of riffle-obligate species

Is Sampling Reach Representative of the Stream? (Y/N) No In Not, Explain Stream channel is very representative, but the buffer/ floodplain is in the ROW of the Duke overhead powerlines so ROW has been cleared of trees

Major Suspected Sources of Impacts (Check All That Apply):	
None	
Industrial	
WWTP	
Ag	
Livestock	
Silviculture	
Construction	
Urban Runoff	
CSOs	
Suburban Impacts	
Mining	
Channelization	
Riparian Removal	X
Landfills	
Natural	
Dams	
Other Flow Alterations	
Other:	

Subjective Rating (1-10)	Aesthetic Rating (1-10)
5	5

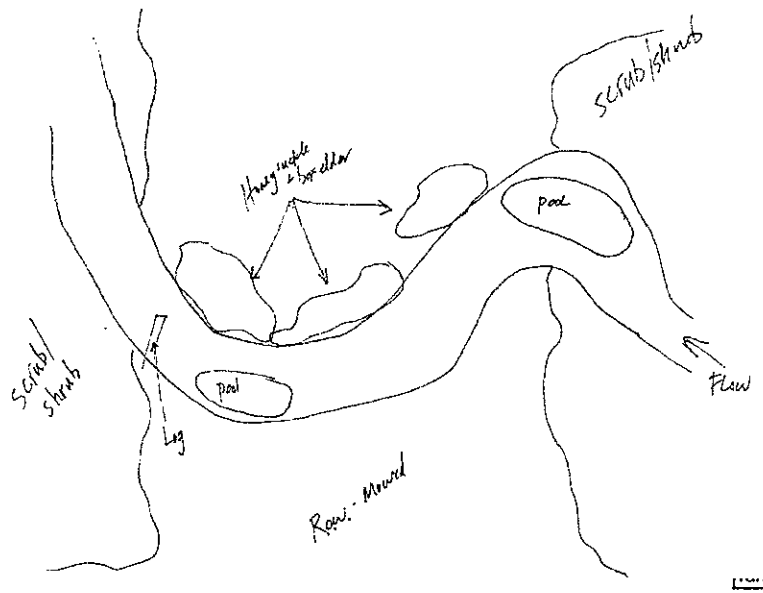
	Gear:	Distance:	Water Clarity:	Water Stage:	Canopy % Open:
First Sampling Pass					

Gradient:

[ ] Low [ ] Moderate [X] High

Stream Measurements:

Average Width (ft)	Average Depth (ft)	Maximum Depth (ft)	Av Bankfull Width (ft)	Bankfull Mean Depth (ft)	W/D Ratio	Bankfull Max Depth (ft)	Floodprone Area Width (ft)	Entrench. Ratio
20	3	4.5	20	6	3.33	8	120	6.00



ions for scoring the alternate cover metric: Each cover type receive a score of between 0 and 3, Where: 0 – Cover type 1 – Cover type present in very small amounts or if more n of marginal quality; 2 – Cover type present in moderate s, but not of highest quality or in small amounts of highest 3 – Cover type of highest quality in moderate or greater s. Examples of highest quality include very large boulders or fast water, large diameter logs that are stable, well ed rootwads in deep/fast water, or deep, well-defined, al pools.

Yes/No	
X	Is Stream Ephemeral (no pools, totally dry or only damp spots)?
X	Is There Water Upstream?
	How Far:
X	Is There Water Close Downstream?
	How Far:
X	Is Dry Channel Mostly Natural?

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 32

SITE NAME/LOCATION Stream 2
SITE NUMBER | RIVER BASIN Great Miami River | DRAINAGE AREA (mi^2) <0.01
LENGTH OF STREAM REACH (ft) 260 | LAT. 39.441400 | LONG. -84.34730 | RIVER CODE | RIVER MILE
DATE 5/31/2016 | SCORER CAJ/DKT | COMMENTS Within Existing ROW

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS ☐ None / Natural Channel ☐ Recovered ☑ Recovering ☐ Recent or No Recovery

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
☐ BLDR SLABS [16 PTS]		☑ SILT [3 PTS]	75
☐ BOULDER (>256 mm) [16 PTS]		☐ LEAF PACK/WOODY DEBRIS [3 PTS]	
☐ BEDROCK [16 PTS]		☐ FINE DETRITUS [3 PTS]	
☐ COBBLE (65-256 mm) [12 PTS]		☐ CLAY or HARDPAN [0 PTS]	
☐ GRAVEL (2-64 mm) [9 PTS]	5	☐ MUCK [0 PTS]	
☑ SAND (<2 mm) [6 PTS]	20	☐ ARTIFICIAL [3 PTS]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) → 9

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points — Substrate Max = 40: 12 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 ft)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ >30 centimeters [20 PTS]
☐ >22.5 - 30 cm [30 PTS]
☐ >10 - 22.5 cm [25 PTS]
☐ >5 cm - 10 cm [15 PTS]
☑ ≤5 cm [5 PTS]
☐ NO WATER OR MOIST CHANNEL [0 PTS]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): 2.5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ >4.0 meters (>13') [30 PTS]
☐ >3.0 m - 4.0 m (>9' 7" - 13') [25 PTS]
☐ >1.5 m - 3.0 m (>4' 8" - 9' 7") [20 PTS]
☑ >1.0 m - 1.5 m (>3' 3" - 4' 8") [15 PTS]
☐ ≤1.0 m (≤3' 3") [5 PTS]

COMMENTS

AVERAGE BANKFULL WIDTH (meters): 1.2

Bankfull Width Max = 30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream

L	R	RIPARIAN WIDTH (Per Bank)
☐	☐	Wide >10 m
☐	☐	Moderate 5 - 10 m
☑	☑	Narrow <5 m
☐	☐	None

Comments: Located within existin ROW

L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)
☐	☐	Mature Forest, Wetland
☑	☑	Immature Forest, Shrub or Old Fiel
☐	☐	Residential, Park, New Field
☐	☐	Fenced Pasture

L	R	
☐	☐	Conservation Tillage
☐	☐	Urban or Industrial
☐	☐	Open Pasure, Row Crop
☐	☐	Mining or Construction

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

Comments

SINUOSITY (Number of bends per 61m (200ft) of channel) (Check *ONLY* one box):

☑ None 0.5 ☐ 1.0 1.5 ☐ 2.0 2.5 ☐ 3.0 >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Great Miami River Distance from Evaluated Stream 6.5 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Monroe NRCS Soil Map Page: X NRCS Soil Map Stream Order _____

County: Butler Township/City: Middletown

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipition: 5/29/2016 Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 60

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. And attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream? (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVAULATION

Performed? (Y/N): N (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appopriate field data sheets from the Primary Hedwater Habitat Assessment Manual)

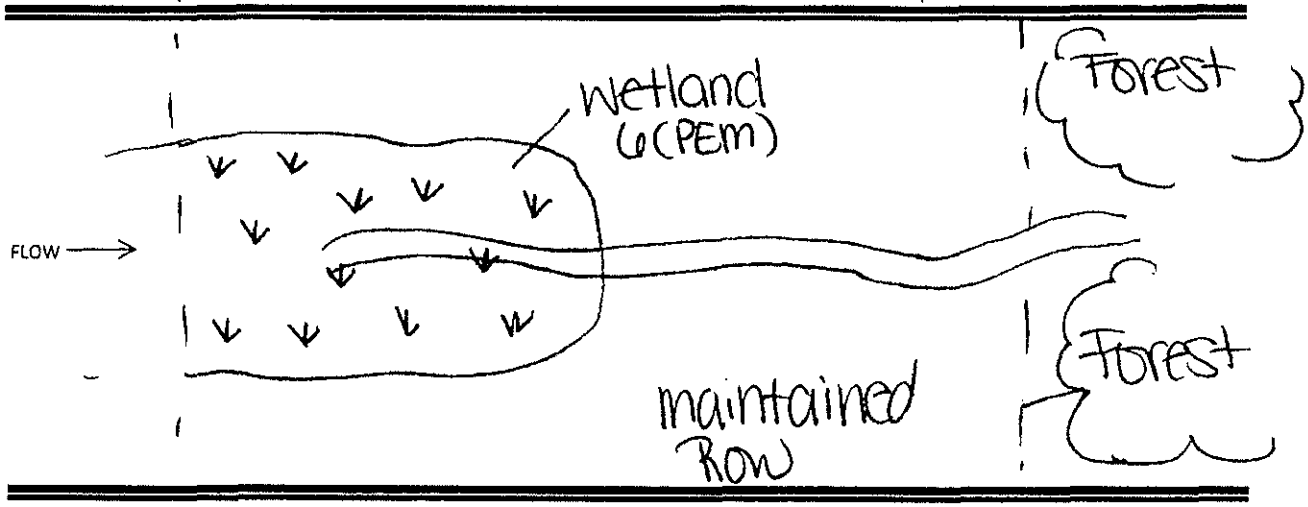
Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher(Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 30

SITE NAME/LOCATION Stream 3
SITE NUMBER | RIVER BASIN Great Miami River | DRAINAGE AREA (mi^2) 0.12
LENGTH OF STREAM REACH (ft) 140 | LAT. 39.4458 | LONG. -84.3588 | RIVER CODE | RIVER MILE
DATE 5/31/2016 | SCORER CAJ/DKT | COMMENTS Within Existing ROW

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS ☐ None / Natural Channel ☐ Recovered ☐ Recovering ☑ Recent or No Recovery

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
☐ BLDR SLABS [16 PTS]		☑ SILT [3 PTS]	10
☐ BOULDER (>256 mm) [16 PTS]		☐ LEAF PACK/WOODY DEBRIS [3 PTS]	
☐ BEDROCK [16 PTS]		☐ FINE DETRITUS [3 PTS]	
☐ COBBLE (65-256 mm) [12 PTS]		☐ CLAY or HARDPAN [0 PTS]	
☐ GRAVEL (2-64 mm) [9 PTS]	5	☐ MUCK [0 PTS]	
☐ SAND (<2 mm) [6 PTS]	5	☑ ARTIFICIAL [3 PTS]	80

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A)

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 6

(B) **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points — Substrate Max = 40: 10

A + B: 10

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 ft)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ >30 centimeters [20 PTS]
- ☐ >22.5 - 30 cm [30 PTS]
- ☐ >10 - 22.5 cm [25 PTS]
- ☐ >5 cm - 10 cm [15 PTS]
- ☑ ≤5 cm [5 PTS]
- ☐ NO WATER OR MOIST CHANNEL [0 PTS]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): 5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

- ☐ >4.0 meters (>13') [30 PTS]
- ☐ >3.0 m - 4.0 m (>9' 7" - 13') [25 PTS]
- ☐ >1.5 m - 3.0 m (>4' 8" - 9' 7") [20 PTS]
- ☑ >1.0 m - 1.5 m (>3' 3" - 4' 8") [15 PTS]
- ☐ ≤1.0 m (≤3' 3") [5 PTS]

COMMENTS

AVERAGE BANKFULL WIDTH (meters): 1.2

Bankfull Width Max = 30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream

L R	RIPARIAN WIDTH (Per Bank)
☐ ☐	Wide >10 m
☐ ☐	Moderate 5 - 10 m
☐ ☐	Narrow <5 m
☑ ☑	None

L R	FLOODPLAIN QUALITY (Most Predominant per Bank)
☐ ☐	Mature Forest, Wetland
☑ ☑	Immature Forest, Shrub or Old Field
☐ ☐	Residential, Park, New Field
☐ ☐	Fenced Pasture

L R	
☐	Conservation Tillage
☐	Urban or Industrial
☐	Open Pasure, Row Crop
☐	Mining or Construction

Comments: Located within existin RO

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

Comments

SINUOSITY (Number of bends per 61m (200ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5ft/100ft) ☑ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Great Miami River Distance from Evaluated Stream 6.5 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Monroe NRCS Soil Map Page: X NRCS Soil Map Stream Order _____

County: Butler Township/City: Middletown

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipition: 5/29/2016 Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. And attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream? (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVAULATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appopriate field data sheets from the Primary Hedwater Habitat Assessment Manual)

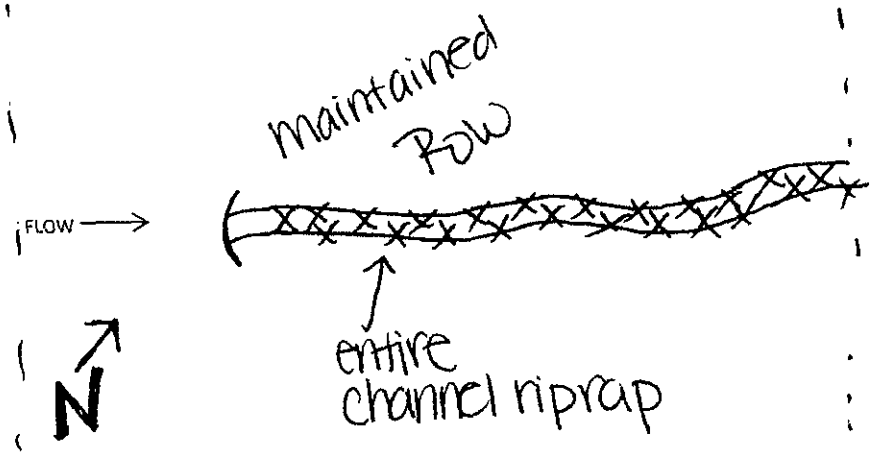
Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher(Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



DUKE ENERGY
TODHUNTER TO NICKEL

APPENDIX

OHIO RAPID ASSESSMENT METHOD 5.0
FORM AND USACE WETLAND
DELINEATION DATA SHEETS

Site: Wetland 1	Rater(s): CAJ DKT	Date: May 31, 2016

Project: 5680 - Todhunter to Nickel - Rebuild

3	3
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)
- [X] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

1	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
- [x] 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), shrubland, young second growth forest. (5
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1

23	27
max 30 pts.	subtotal

Metric 3. Hydrology

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

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

3b. Connectivity. Score all that apply.

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

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

- [X] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [ ] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [X] tile
- [ ] dike
- [ ] weir
- [X] stormwater input
- [ ] point source (nonstormwater)
- [X] filling/grading
- [ ] road bed/RR track
- [X] dredging
- [ ] other

5	32
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)
- [X] 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)
- [X] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [X] Recovering (3)
- [X] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [X] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

32
subtotal this page

Site: Wetland 1	Rater(s): CAJ DKT	Date: May 31, 2016

-1

subtotal this page

Project: 5680 - Todhunter to Nickel - Rebuild

0	0

max 10 pt: 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
- [x] Not Applicable (0)

-1	-1

max 20 pt: subtotal

Metric 6. Plant communities, interspersion, microtopograhy.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [2] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [x] None (0)

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

- [x] 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.

- [0] Vegetated hummocks/tussocks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [2] Amphibian breading 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 smal 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 no always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
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

31	Grand Total (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

Site: Wetland 2 & Wetland 3	Rater(s): CAJ DKT	Date: May 31, 2016

Project: 5680 - Todhunter to Nickel - Rebuild

0	0
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) (2 pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [X] <0.1 acres (0.04ha) (0 pts)

2	2
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
- [X] 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), shrubland, young second growth forest. (5
- [X] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1

7	9
max 30 pts.	subtotal

Metric 3. Hydrology

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

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

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)
- [x] Part of riparian or upland corridor (1)

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)
- [X] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [X] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[X]	ditch	[ ]	point source (nonstormwater)
[ ]	tile	[ ]	filling/grading
[ ]	dike	[X]	road bed/RR track
[ ]	weir	[ ]	dredging
[X]	stormwater input	[ ]	other

3.5	13
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)
- [X] Recovering (2)
- [X] 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)
- [X] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

[x]	mowing	[ ]	shrub/sapling removal
[ ]	grazing	[ ]	herbaceous/aquatic bed removal
[ ]	clearcutting	[X]	sedimentation
[ ]	selective cutting	[ ]	dredging
[ ]	woody debris removal	[ ]	farming
[ ]	toxic pollutants	[ ]	nutrient enrichment

13
subtotal this page

Site: Wetland 2 & Wetland 3	Rater(s): CAJ DKT	Date: May 31, 2016

-2
subtotal this page

Project: 5680 - Todhunter to Nickel - Rebuild

0 | 0
max 10 pt: 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)
- [x] Not Applicable (0)

-2 | -2
max 20 pt: subtotal

Metric 6. Plant communities, interspersion, microtopograhy.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [x] 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)
- [X] 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.

- [0] Vegetated hummocks/tussocks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breading 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 smal 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 no always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
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

11 Grand Total (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

Site: Wetland 4	Rater(s): CAJ DKT	Date: May 31, 2016

Project: 5680 - Todhunter to Nickel - Rebuild

0	0
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) (2 pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [X] <0.1 acres (0.04ha) (0 pts)

2	2
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
- [X] 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), shrubland, young second growth forest. (5
- [X] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1

7	9
max 30 pts.	subtotal

Metric 3. Hydrology

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

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

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)
- [X] Part of riparian or upland corridor (1)

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)
- [X] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [X] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [X] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [X] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [X] road bed/RR track
- [ ] dredging
- [ ] other

4.5	14
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)
- [X] Recovered (3)
- [X] 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)
- [X] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [X] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

14
subtotal this page

Site: Wetland 4	Rater(s): CAJ DKT	Date: May 31, 2016

-1
subtotal this page

Project: 5680 - Todhunter to Nickel - Rebuild

0	0
max 10 pt:	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
- [x] Not Applicable (0)

-1	-1
max 20 pt:	subtotal

Metric 6. Plant communities, interspersion, microtopograhy.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [0] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [X] 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)
- [X] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummocks/tussocks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breading 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 smal 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 no always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
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

13	Grand Total (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

Site: Wetland 5	Rater(s): CAJ DKT	Date: May 31, 2016

Project: 5680 - Todhunter to Nickel - Rebuild

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) (2 pts)
- [X] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

3	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
- [X] 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), shrubland, young second growth forest. (5
- [X] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1

7.5	12
max 30 pts.	subtotal

Metric 3. Hydrology

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

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

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)
- [X] Part of riparian or upland corridor (1)

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)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [X] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [X] filling/grading
- [X] road bed/RR track
- [ ] dredging
- [ ] other

4	16
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)
- [X] 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)
- [X] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [X] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

16
subtotal this page

Site: Wetland 5	Rater(s): CAJ DKT	Date: May 31, 2016

-1

subtotal this page

Project: 5680 - Todhunter to Nickel - Rebuild

0	0

max 10 pt: 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)
- [x] Not Applicable (0)

-1	-1

max 20 pt: subtotal

Metric 6. Plant communities, interspersion, microtopograhy.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [X] 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)
- [X] 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/tussocks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [0] Amphibian breading 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 smal 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 no always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
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

15	Grand Total (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

Site: Wetland 6	Rater(s): CAJ DKT	Date: May 31, 2016

Project: 5680 - Todhunter to Nickel - Rebuild

0	0
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) (2 pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [X] <0.1 acres (0.04ha) (0 pts)

5	5
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
- [X] 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
- [X] LOW. Old field (>10 years), shrubland, young second growth forest. (5
- [X] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1

15	20
max 30 pts.	subtotal

Metric 3. Hydrology

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

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

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)
- [X] Part of riparian or upland corridor (1)

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)
- [X] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other

5	25
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)
- [X] 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)
- [X] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [X] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

25
subtotal this page

Site: Wetland 6	Rater(s): CAJ DKT	Date: May 31, 2016

Project:	5680 - Todhunter to Nickel - Rebuild

-5 subtotal this page

max 10 pt: 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
- [ ] Not Applicable (0)

-5 -5 max 20 pt: subtotal

Metric 6. Plant communities, interspersion, microtopograhy.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [0] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [X] None (0)

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

- [X] 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.

- [0] Vegetated hummocks/tussocks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [0] Amphibian breading 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 smal 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 no always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
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

20 Grand Total (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

ORAM v 5.0 Field Form Quantitative Rating

Site: Wetland 7	Rater(s): CAJ DKT	Date: May 31, 2016

Project: 5680 - Todhunter to Nickel - Rebuild

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)
- [X] 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

3	5
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
- [X] 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), shrubland, young second growth forest. (5
- [X] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1

13	18
max 30 pts.	subtotal

Metric 3. Hydrology

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [X] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)
- [X] Part of riparian or upland corridor (1)

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)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [X] Recovered (7)
- [X] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [X] stormwater input
- [ ] point source (nonstormwater)
- [X] filling/grading
- [X] road bed/RR track
- [ ] dredging
- [ ] other

7	25
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)
- [X] 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)
- [X] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [X] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [X] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

25
subtotal this page

Site: Wetland 7	Rater(s): CAJ DKT	Date: May 31, 2016

-4
subtotal this page

Project: 5680 - Todhunter to Nickel - Rebuild

max 10 pt: 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)
- [ ] Not Applicable (0)

-4 | -4
max 20 pt: subtotal

Metric 6. Plant communities, interspersion, microtopograhy.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [X] None (0)

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

- [X] 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/tussocks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breading 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
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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 no always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
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

21 Grand Total (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

ORAM v 5.0 Field Form Quantitative Rating

Site: Wetland 8	Rater(s): CAJ DKT	Date: June 6, 2016

Project: 5680 - Todhunter to Nickel - Rebuild

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) (2 pts)
- [X] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

4	5
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
- [X] 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), shrubland, young second growth forest. (5
- [X] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1

12	17
max 30 pts.	subtotal

Metric 3. Hydrology

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

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

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)
- [X] Part of riparian or upland corridor (1)

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)
- [x] <0.4m (<15.7in) (1)

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

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

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

- [ ] None or none apparent (12)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [X] stormwater input
- [ ] point source (nonstormwater)
- [X] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other

9.5	26
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)
- [X] Recovered (3)
- [X] 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)
- [X] Poor (1)

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

- [ ] None or none apparent (9)
- [X] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [X] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

26
subtotal this page

Site: Wetland 8	Rater(s): CAJ DKT	Date: June 6, 2016

-4	subtotal this page

Project:	5680 - Todhunter to Nickel - Rebuild

		max 10 pt: 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
- [ ] Not Applicable (0)

-4	-4	max 20 pt: subtotal

Metric 6. Plant communities, interspersion, microtopograhy.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [X] None (0)

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

- [X] 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.

- [0] Vegetated hummocks/tussocks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breading 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 smal 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 no always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
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

22	Grand Total (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138 kV Todhunter to Nickel Rebuild City/County: Monroe, Warren Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP01

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 2E 3N S5

Landform (hillslope, terrace, etc.): detension basin Local relief (concave, convex, none): concave

Slope (%): 0% Lat: 39.4311 Long: -84.3243 Datum: NAD83 UTM16N

Soil Map Unit Name: Patton silty clay loam (Pc) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No ____

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: Wetland 1

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: 5' radius)			
1. *Typha X glauca*	80%	Yes	OBL
2. *Lemna minor*	20%	No	OBL
3. *Salix nigra*	10%	No	OBL
4. *Scirpus atrovirens*	5%	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	115%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	115%	x1 =	1.15
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	1.15 (A)		1.15 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

X 3-Prevalence Index is ≤3.0[1]

___ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

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

Wetland 1 appears to be an excavated detention basin associated with adjcaent commercial/industrial facilities constructed after 2006 based on historic aerials.

SOIL

Sampling Point: DP01

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 3/1	90	10YR 4/6	10	C	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

[3]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 X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	0"

Wetland Hydrology Present? Yes X No ___

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

Remarks: Areas containing surface water are located throughout the wetland beyond this data point.

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138 kV Todhunter to Nickel Rebuild City/County: Monroe, Warren County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP02

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 2E 3N S5

Landform (hillslope, terrace, etc.): Hill Slope Local relief (concave, convex, none): none

Slope (%): 5% Lat: 39.4311 Long: -84.3243 Datum: NAD83 UTM16N

Soil Map Unit Name: Patton silty clay loam (Pc) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 ____	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X			

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. No vegetation			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Festuca rubra*	95%	Yes	FACU
2. *Trifolium repens*	10%	No	FACU
3. *Solidago canadensis*	3%	No	FACU
4. *Taraxacum officinale*	3%	No	FACU
5. *Melilotus officinalis*	3%	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	114%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. No vegetation			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
That Are OBL, FACW, or FAC:		A/B
OBL species	x1 =	
FACW species	x2 =	
FAC species	x3 =	
FACU species 114%	x4 =	4.56
UPL species	x5 =	
Column Totals: 1.14 (A)		4.56 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

____ 2-Dominance Test is >50%

____ 3-Prevalence Index is ≤3.0[1]

____ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: DP02

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 4/4	100					Clay Loam	Fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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[3]:

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

[3]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 X

Remarks: Maintained turf/ residential lawn.

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 X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	>18"

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP03

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S11

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Concave

Slope (%): 2% Lat: 39.4393 Long: -84.3429 Datum: NAD83 UTM16N

Soil Map Unit Name: Dana Silt Loam (Da) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No

Hydric Soil Present? Yes X No

Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No

Remarks:
DP03 represents Wetland 2 and Wetland 3 located in a low depressional area adjacent to Lenanon Road.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Poa pratensis*	65%	Yes	FAC
2. *Typha X glauca*	25%	Yes	OBL
3. *Acorus calamus*	8%	No	OBL
4. *Eleocharis obtusa*	5%	No	OBL
5. *Scirpus atrovirens*	5%	No	OBL
6. *Rumex crispus*	3%	No	FAC
7. *Carex vulpinoidea*	3%	No	FACW
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	114%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	A/B
OBL species	43%	x1 =	0.43
FACW species	3%	x2 =	0.06
FAC species	68%	x3 =	2.04
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	1.14 (A)		2.53 (B)

Prevalence Index = B/A = 2.22

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid Test for Hydrophytic Vegetation
- X 2-Dominance Test is >50%
- X 3-Prevalence Index is ≤3.0[1]
- ___ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: DP03

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 4/2	90	10YR 4/6	10	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

[3]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 X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	3"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP04

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S11

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none

Slope (%): 2% Lat: 39.4393 Long: -84.343 Datum: NAD83 UTM16N

Soil Map Unit Name: Dana Silt Loam (Da) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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	No X	**Is the Sampled Area**	
Hydric Soil Present?	Yes	No X	**within a Wetland?**	Yes No X
Wetland Hydrology Present?	Yes	No X		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Festuca rubra*	90%	Yes	FACU
2. *Trifolium repens*	5%	No	FACU
3. *Plantago major*	3%	No	FAC
4. *Taraxacum officinale*	3%	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	101%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species		x1 =	
FACW species		x2 =	
FAC species	3%	x3 =	0.09
FACU species	98%	x4 =	3.92
UPL species		x5 =	
Column Totals:	1.01 (A)		4.01 (B)

Prevalence Index = B/A = 3.97

Hydrophytic Vegetation Indicators:

___ 1-Rapid Test for Hydrophytic Vegetation

___ 2-Dominance Test is >50%

___ 3-Prevalence Index is ≤3.0[1]

___ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

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

Data point located in maintained turf.

SOIL

Sampling Point: DP04

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 4/3	100					Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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[3]:

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

[3]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 X

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 X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	>18"

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP05

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S11

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Concave

Slope (%): 2% Lat: 39.4386 Long: -84.3424 Datum: NAD83 UTM16N

Soil Map Unit Name: Dana Silt Loam (Da) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No

Hydric Soil Present? Yes X No

Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No

Remarks: Wetland 4
DP05 is located in a low area adjacent to Cart Path Drive.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Poa pratensis*	60%	Yes	FAC
2. *Carex vulpinoidea*	10%	No	FACW
3. *Cyperus esculentus*	10%	No	FACW
4. *Eleocharis obtusa*	5%	No	OBL
5. *Scirpus atrovirens*	5%	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	90%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of: That Are OBL, FACW, or FAC:		Multiply by: A/B	
OBL species	10%	x1 =	0.1
FACW species	20%	x2 =	0.4
FAC species	60%	x3 =	1.8
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	0.90 (A)		2.3 (B)

Prevalence Index = B/A = 2.56

Hydrophytic Vegetation Indicators:

- ___ 1-Rapid Test for Hydrophytic Vegetation
- X 2-Dominance Test is >50%
- X 3-Prevalence Index is ≤3.0[1]
- ___ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: DP05

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 4/2	90	10YR 4/6	10	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

[3]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 X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	3"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP06

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S11

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none

Slope (%): 2% Lat: 39.4387 Long: -84.3424 Datum: NAD83 UTM16N

Soil Map Unit Name: Dana Silt Loam (Da) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 ____	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X			

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Festuca rubra*	90%	Yes	FACU
2. *Trifolium repens*	5%	No	FACU
3. *Plantago major*	3%	No	FAC
4. *Taraxacum officinale*	3%	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	101%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species		x1 =	
FACW species		x2 =	
FAC species	3%	x3 =	0.09
FACU species	98%	x4 =	3.92
UPL species		x5 =	
Column Totals:	1.01 (A)		4.01 (B)

Prevalence Index = B/A = 3.97

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

____ 2-Dominance Test is >50%

____ 3-Prevalence Index is ≤3.0[1]

____ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: DP06

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 4/3	100					Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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[3]:

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

[3]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 X

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 X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	>18"

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP07

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S11

Landform (hillslope, terrace, etc.): Basin - excavated Local relief (concave, convex, none): Concave

Slope (%): 2-3% Lat: 39.4408 Long: -84.3458 Datum: NAD83 UTM16N

Soil Map Unit Name: Miamian-Russell silt loams (MtC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No ____

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: Wetland 5
DP07 is located in an excavated that extends beyond the existing ROW corridor.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: 5' radius)			
1. *Typha angustifolia*	80%	Yes	OBL
2. *Dipsacus fullonum*	25%	No	FACU
3. *Salix nigra*	15%	No	OBL
4. *Populus deltoides*	10%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	130%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	A/B
OBL species	95%	x1 =	0.95
FACW species		x2 =	
FAC species	10%	x3 =	0.3
FACU species	25%	x4 =	1
UPL species		x5 =	
Column Totals:	1.30 (A)		2.25 (B)

Prevalence Index = B/A = 1.73

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

X 3-Prevalence Index is ≤3.0[1]

____ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

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

SOIL

Sampling Point: DP07

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR 4/2	95	10YR 4/6	5	C	M	Clay Loam	disturbed soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock impasse

Depth (inches): 6

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	2"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP08

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S11

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave

Slope (%): 0-1% Lat: 39.4407 Long: -84.347 Datum: NAD83 UTM16N

Soil Map Unit Name: Miamian-Russell silt loams (MtC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 ___	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ___	No X	**within a Wetland?**	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X			

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Festuca rubra*	60%	Yes	FACU
2. *Solidago canadensis*	35%	Yes	FACU
3. *Dipsacus fullonum*	15%	No	FACU
4. *Cirsium arvense*	10%	No	FACU
5. *Melilotus officinalis*	5%	No	FACU
6. *Conium maculatum*	5%	No	UPL
7. *Pastinaca sativa*	5%	No	UPL
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	135%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius .)			
1. *No vegetation*			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species	125%	x4 =	5
UPL species	10%	x5 =	0.5
Column Totals:	1.35 (A)		5.5 (B)

Prevalence Index = B/A = 4.07

Hydrophytic Vegetation Indicators:

___ 1-Rapid Test for Hydrophytic Vegetation

___ 2-Dominance Test is >50%

___ 3-Prevalence Index is ≤3.0[1]

___ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

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

SOIL

Sampling Point: DP08

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	10YR 4/4	10					Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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[3]:

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

[3]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 X

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 X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	>18"

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP09

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S11

Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave

Slope (%): 0% Lat: 39.4409 Long: -84.3476 Datum: NAD83 UTM16N

Soil Map Unit Name: Miamian-Russell silt loams (MtC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No ____

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: Wetland 6

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: 5' radius)			
1. *Phalaris arundinacea*	95%	Yes	FACW
2. *Typha X glauca*	5%	No	OBL
3. *Impatiens capensis*	5%	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	105%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	5%	x1 =	0.05
FACW species	100%	x2 =	2
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	1.05 (A)		2.05 (B)

Prevalence Index = B/A = 1.95

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

X 3-Prevalence Index is ≤3.0[1]

____ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

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

SOIL

Sampling Point: DP09

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	10YR 4/1	95	10YR 4/6	5	C	M	Clay Loam	disturbed soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock impasse

Depth (inches): 6

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	0"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP10

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S11

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None

Slope (%): 5% Lat: 39.4408 Long: -84.3474 Datum: NAD83 UTM16N

Soil Map Unit Name: Miamian-Russell silt loams (MtC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 ____	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X			

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. No vegetation			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Festuca rubra*	45%	Yes	FACU
2. *Solidago canadensis*	35%	Yes	FACU
3. *Dipsacus fullonum*	20%	No	FACU
4. *Cirsium arvense*	10%	No	FACU
5. *Melilotus officinalis*	5%	No	FACU
6. *Pastinaca sativa*	5%	No	UPL
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	120%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species	115%	x4 =	4.6
UPL species	5%	x5 =	0.25
Column Totals:	1.20 (A)		4.85 (B)

Prevalence Index = B/A = 4.04

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

____ 2-Dominance Test is >50%

____ 3-Prevalence Index is ≤3.0[1]

____ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: DP10

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	10YR 4/4	10					Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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[3]:

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

[3]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 X

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 X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	>18"

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP11

Investigator(s): C.Jansing, D.Thompson *Section, Township, Range:* 3E 3N S11

Landform (hillslope, terrace, etc.): detention basin Local relief (concave, convex, none): Concave

Slope (%): 0% Lat: 39.4422 Long: -84.3501 Datum: NAD83 UTM16N

Soil Map Unit Name: Eden silty clay loam (EcE2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No

Hydric Soil Present? Yes X No **Is the Sampled Area within a Wetland?** Yes X No

Wetland Hydrology Present? Yes X No

Remarks: Wetland 7
DP11 located in concave area between a residential community and SR 63.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Salix nigra*	10%	Yes	OBL
2.			
3.			
4.			
5.			
	10%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Phragmites australis*	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	100%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	10%	x1 =	0.1
FACW species	100%	x2 =	2
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	1.10 (A)		2.1 (B)

Prevalence Index = B/A = 1.91

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

X 3-Prevalence Index is ≤3.0[1]

___ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: DP11

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16"	10YR 4/1	90	10YR 4/6	10	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

[3]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 X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	3"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 5/31/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP12

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S11

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none

Slope (%): 8-10% Lat: 39.4422 Long: -84.3501 Datum: NAD83 UTM16N

Soil Map Unit Name: Eden silty clay loam (EcE2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 ____ No X

Hydric Soil Present? Yes ____ No X

Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
DP12 located on a steep hill slope adjacent to DP11.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Lonicera tatarica*	100%	Yes	FACU
2.			
3.			
4.			
5.			
	100%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16			
17.			
18.			
19.			
20.			
		= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
That Are OBL, FACW, or FAC:		A/B
OBL species	x1 =	
FACW species	x2 =	
FAC species	x3 =	
FACU species 100%	x4 =	4
UPL species	x5 =	
Column Totals: 1.00 (A)		4 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

____ 2-Dominance Test is >50%

____ 3-Prevalence Index is ≤3.0[1]

____ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: DP12

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR 4/4	100					Clay Loam	friable

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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[3]:

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

[3]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 X

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 X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	>18"

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138kV Todhunt to Nickel - Rebuild City/County: Monroe, Butler County Sampling Date: 6/6/2016

Applicant/Owner: Duke Energy State: OH Sampling Point: DP13

Investigator(s): C.Jansing, D.Thompson Section, Township, Range: 3E 3N S18

Landform (hillslope, terrace, etc.): Detention Basin Local relief (concave, convex, none): Concave

Slope (%): 2-3% Lat: 39.4471 Long: -84.3616 Datum: NAD83 UTM16N

Soil Map Unit Name: Dana silt loam (Da) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No ___

Hydric Soil Present? Yes X No ___

Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes X No ___

Remarks: Wetland 8

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Typha angustifolia*	100%	Yes	OBL
2. *Carex vulpinoidea*	5%	No	FACW
3. *Cyperus esculentus*	5%	No	FACW
4. *Eleocharis obtusa*	2%	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	112%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	102%	x1 =	1.02
FACW species	10%	x2 =	0.2
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	1.12 (A)		1.22 (B)

Prevalence Index = B/A = 1.09

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

X 3-Prevalence index is ≤3.0[1]

___ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: DP13

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 4/1	90	10YR 4/6	10	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

[3]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 X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	3"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

DUKE ENERGY
TODHUNTER TO NICKEL

APPENDIX

ENDANGERED, THREATENED, AND RARE SPECIES

Ohio Department of Natural Resources

Ohio Division of Wildlife
Raymond W. Petering, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

July 6, 2016

Cori Jansing
Cardno
11121 Canal Rd.
Cincinnati, OH 45241

Dear Ms. Jansing,

After reviewing the Natural Heritage Database, I find the Division of Wildlife has no records of rare or endangered species in the 5680 138 kV Todhunter to Nickel Rebuild & 3283 138 kV Line Removal project area, including a one mile radius, in Lemon Township, Butler County and Turtle Creek Township, Warren County, Ohio. We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forests, national wildlife refuges, parks or forests or other protected natural areas within a one mile radius of the project area. We also have no records for Indiana Bat (*Myotis sodalis*) capture locations within a five mile radius or hibernacula within a ten mile radius of the project site. We do not have sufficient data to respond to your request concerning the Northern Long-eared Bat *(Myotis septentrionalis*).

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does 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.

Please contact me at 614-265-6818 if I can be of further assistance.

Sincerely,

Debbie Woischke

Debbie Woischke
Ohio Natural Heritage Database Program

Cardno
Shaping the Future

August 19, 2016

Mr. Dan Everson
United States Fish and Wildlife Service
Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230

Cardno

11121 Canal Road
Cincinnati, Ohio 45241
USA

Phone 513 489 2402
Fax 513 489 2404

www.cardno.com

RE: 5680 Todhunter to Nickel Rebuild & 3283 Line Removal Project
Threatened and Endangered Species Consultation
Monroe, Butler and Warren Counties, Ohio

Dear Mr. Everson:

Duke Energy (Duke) is proposing to complete the removal and replacement of approximately 3.68 miles of existing transmission line (5680 Todhunter to Nickel Rebuild) and the removal of approximately 3.69 miles of decommissioned transmission line (3283 Line Removal), encompassing a total study corridor of 5.2 miles of existing 150-foot wide Duke Energy transmission line corridor Right-Of-Way (ROW). A field investigation of the corridor was conducted on May 31, 2016 and June 6-7, 2016.

The Study Area was primarily maintained right-of-way (ROW)/scrub-shrub, agricultural field, secondary growth forest, and maintained turf/industrial land. The location of the proposed Project is shown on the attached USGS 7.5-minute topographic map excerpt (Figure 1).

Cardno was contracted by Duke to perform a boundary delineation and assessment of regulated waters, including wetlands and streams which are located within the proposed 5.2 miles of existing 150- wide right of way. Specific attention was given to the presence of habitat suitable for federally endangered species – specifically Indiana Bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis)*. To evaluate the potential habitat for rare, threatened, and endangered species a general site reconnaissance of the project area was performed by Cardno botanists. The survey area has been summarized for you below.

1. Location data including latitude and longitude of the project area, site address, and county.

The 5680 Todhunter to Nickel Rebuild project begins at Duke Energy's Todhunter Station located south of Todhunter Road and west of Wicklow Lane (39.454930,

-84.376347) and terminates at Duke Energy's Nickel Station (39.426871, -84.426871). The beginning of the 3283 Line Removal (138 kV) project is located at the HL676 Structure located immediately south of OH-63 and north of Village Court (39.443904, -84.355629) and terminates at Duke Energy's HL646 Structure located east of Station Creek and west of OH-741 (39.421246, -84.292077).

Approximate Center Point Coordinates: 39.435946, -84.336298

2. A detailed project description, including layout of any new construction.

The proposed 5680 Todhunter to Nickel Rebuild project is necessary in order to maintain the integrity of existing Duke structures and ensure adequate power supplies to current and future utility customers in the area. The proposed 3283 Line Removal and 5680 Todhunter to Nickel Rebuild projects are necessary to ensure safety within the existing easements and remain in compliance with current transmission line standards. The transmission line route consists of an existing transmission line corridor and Duke Energy easement.

Construction will be accomplished largely through the use of bucket trucks with truck-mounted augers for structure installation and other construction vehicles transporting cable spools to install the transmission cable along the route. Excavation will be restricted to the locations where the installation of new structures will occur. Earth moving activities are anticipated to be minimal, if any. The extent of access disturbance can vary widely dependent upon many factors, including density and type of surface, vegetative cover, weather conditions, and the type of vehicles moving over the area. The existing vegetation will be preserved to the maximum extent practicable.

Project construction is expected to begin in Fall 2016.

3. A detailed description of onsite habitat, including the size, location, and quality of streams, wetlands, forested areas, and other natural areas, and proposed impacts.

The proposed project is linear in scope and will take place entirely within an established transmission line ROW and the one designated laydown yard (Figure 1 & 2). There are fourteen potentially regulated waters were identified within the project's Study Area including eight emergent wetlands (Wetland1-Wetland 8), two USGS-named perennial streams (Stream 1, Millers Creek and Stream 5, Station Creek), two unnamed USGS-intermittent streams (Stream3 and Stream 4), one unnamed ephemeral stream (Stream 2), and three excavated ponds (Pond 1 - Pond 3) were identified within the Project Study Area (see Figure 2.1-2.12).

Maintained ROW

The maintained ROW vegetation assemblage was throughout the western portion of the project study area. Dominant vegetation in this habitat type consisted of Tall Fescue (*Festuca arundinacea*), Kentucky Blue Grass (*Poa pratensis*), Canada Thistle (*Cirsium arvense*), Purple Clover (*Trifolium pratense*), White Clover (*Trifolium repens*), Canadian Goldenrod, and Queen

Anne's Lace (*Daucus carota*), although a formal study was not part of this scope, no potential habitat for listed species was identified within this habitat.

Scrub-shrub Characterization
Scrub/Shrub Habitat was located along the edge of the maintained ROW/urban turf areas of the project study area. This habitat type is characterized by a dominance of sub-canopy species including Amur Honeysuckle, Multiflora Rose, and Boxelder (*Acer negundo*), although a formal study was not part of this scope, no potential habitat for listed species was identified within this habitat.

Agricultural field Characterization
Agricultural field vegetation assemblage comprised of tilled fields that were recently seeded with soy bean. The edges of the fields were dominated with Canadian Goldenrod, Queen Anne's Lace, Canada Thistle and Purple Clover; although a formal study was not part of this scope, no potential habitat of listed species was identified within this habitat.

Secondary Growth Forest Characterization
Secondary growth forest vegetation assemblage comprised the approximately 1.3 acres of the Study Area consisted of secondary growth forest located outside the actively maintained ROW. Canopy species observed adjacent to the ROW consisted of Silver Maple (*Acer saccharinum*), Boxelder (*Acer negundo*), White Ash (*Fraxinus americana*), and Eastern Cottonwood (*Populus deltoides*). Understory vegetation was dominated by dense Amur honeysuckle (*Lonicera maackii*) and saplings of the canopy species. There is no anticipated tree clearing activities as part of this project so there is no anticipated impact to any potential roosting habitat for listed bat species and no additional potential habitat of listed species was identified within this habitat.

Urban / Industrial Turf Habitat Characterization
Urban/Industrial Turf vegetation assemblage comprised the majority of the study area in the vicinity of the commercial and residential properties and consisted of maintained existing maintained lawn/turf grass and semi-impervious surfaces (i.e. pavement/gravel/dirt). Dominant vegetation in this habitat type consisted of Tall False Rye Grass (*Schedonorus arundinaceus*), Purple Clover (*Trifolium pratense*), and White Clover (*Trifolium repens*), although a formal study was not part of this scope, no potential habitat for listed species was identified within this habitat.

Palustrine Emergent Wetland Habitat Characterization
The Palustrine Emergent Wetlands were identified within the project study area. Dominant species within this vegetation assemblage consists of Hybrid Cattail (*Typha x glauca,* FACW), Ricecut (*Leersia oryzoides*, OBL), Cottongrass Bulrush (*Scirpus cyperinus*, OBL), Dark-Green Bulrush (*Scirpus atrovirens*, OBL), Devil's Beggartick (*Bidens frondosa,* FACW), Frank's Sedge (*Carex frankii*, OBL), Common Fox Sedge (*Carex vulpinoidea*, FACW), Lesser Poverty Rush (*Juncus tenuis*, FAC) and Kentucky Blue Grass (*Poa pratensis*, FAC).

4. A description of the forested habitat onsite, including type of forest, and presence of dead trees, split branches or trunks, and exfoliating bark, and proposed impacts.

Approximately, 1.3 acres of the Study Area consisted of secondary growth forest located entirely outside the actively maintained ROW. There are no anticipated impacts to these forested areas as part of this project.

5. Photographs representative of all cover types on the site and encompassing views of the entire site.

See the attached photographs on figures.

6. Conclusion

Based on the physical site characteristics, the site provides limited to no potential habitat for the federally listed Indiana bat or the northern long-eared bat.

We are requesting a review by your office and a written response regarding effects on federally listed threatened and/or endangered species and their critical habitat within the vicinity of the project area. Enclosed for your review are the project location map, aerial map and photograph log.

If you have any questions concerning this request or would like additional information, please do not hesitate to contact me at (513) 233-7034 or cori.jansing@cardno.com.

Sincerely,

Cori Jansing
Senior Staff Scientist
Cardno Inc.

Enc: USGS map, Aerial Map with Photographs
File: J156720M23