

LETTER OF NOTIFICATION FOR

**The Dayton Power and Light
Company d/b/a AES Ohio**

**Dayton Power and Light Sugarcreek-Normandy Circuit
Addition Project
PUCO Case No. 21-0496-EL-BLN**

Submitted to:

The Ohio Power Siting Board

Pursuant to OAC 4906-06

Submitted by:

The Dayton Power and Light Company d/b/a AES Ohio

July 2021



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ATTACHMENTS

Attachment A – Figures

Attachment B – Electric and Magnetic Field Levels Study

Attachment C – Cultural Resources Review Figures

Attachment D - Rare, Threatened and Endangered Species Correspondence

Attachment E – Wetland Delineation and Stream Identification Report

Letter of Notification

This Letter of Notification has been prepared by The Dayton Power and Light Company d/b/a AES Ohio ("AES Ohio") in accordance with Ohio Administrative Code (OAC) Section 4906-6-05 for the review of Accelerated Certificate Applications for the AES Ohio Sugarcreek-Normandy Circuit Addition Project (Project). The following section corresponds to the administrative code sections for the requirements of a Letter of Notification.

4906-6-05(B) GENERAL INFORMATION

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

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

Name of Project:

Dayton Power and Light Sugarcreek-Normandy Circuit Addition Project

Reference Numbers:

PUCO Filing Number: The Project has been assigned Public Utilities Commission of Ohio (PUCO) Case Number 21-0496-EL-BLN

Circuit Reference: This project is associated with the existing 13806 Sugarcreek-Bellbrook 138kV line, 13822 Sugarcreek-Centerville 138kV line, and 13805 Hutchings-Gebhart 138 kV line and the new 6940 Sugarcreek-Normandy 69 kV line.

Brief Description of the Project:

AES Ohio plans to build the new 69 kV 6940 transmission line from the Sugarcreek substation to AES Ohio's existing Normandy substation. The new 69 kV line will be constructed on an existing segment of the 13822 line as well as on an existing segment of the 13806 line. In order to support the 6940 line the existing single circuit 138 kV transmission line pole structures on the 13822 line and 13806 line will be replaced with double circuit 138/69 kV pole structures. The segment on the 13806 line will be approximately 0.52 miles long from the existing Sugarcreek substation to Structure 520248 located along Centerville Road. The segment on the 13822 line is an approximately 1.55-mile long segment from Structure 520279 to Structure 520309 located along Spring Valley Pike. Additionally, AES Ohio will be installing new structures and removing existing structures on circuits 13805 and 13822 just outside the Sugarcreek substation in order to relocate these circuits to allow for a 69kV substation expansion project. This work includes two (2) self-supporting, galvanized steel monopoles on circuit 13822, one (1) self-supporting, galvanized monopole on circuit 13805, and one (1) self-supporting, galvanized monopole that will support both 13822 and 13805. The Project is in Sugarcreek Township in Greene County and within the city of Centerville in and unincorporated portions of Montgomery County, Ohio

Letter of Notification Requirement:

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

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

(b) More than two miles

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

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

The primary need for the proposed Sugarcreek-Normandy Circuit Addition Project is to provide an important fourth source into the load center which will address shoulder peak loading concerns and will improve reliability of the three terminal 6610 Yankee-Caesars-Trebein 69kV line that has historically been a poor performing circuit. Further it will allow AES Ohio to parallel transformers at Normandy Substation which will improve operational flexibility.

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

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

The location of the Project is depicted in Attachment A – Project Details. Figure 1 shows the general project vicinity depicted on a USGS quadrangle topographic map. Figure 2 depicts the planned transmission line location, compared to existing transmission lines in the Project vicinity and additional details depicted on an aerial imagery map.

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

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

All work associated with this LON takes place within existing 138 kV transmission line ROW. Therefore, no alternatives were considered.

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

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

Information on the ongoing status of this Project and other AES Ohio transmission projects can

be found at the following website: <https://www.aes-ohio.com/transmission-improvements>. AES Ohio will also notify property owners affected by the project as well as local public officials of the project plan.

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

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

Construction activities associated with the installation of the proposed 69 kV line and structure replacement is tentatively planned to begin September 1, 2021 and anticipated to be completed April 30, 2022.

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

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

Attachment A – Project Details depicts the general location of the Project. Figure 1 shows the general Project vicinity depicted on a USGS quadrangle topographic map. Figure 2 shows the planned transmission line location and additional details depicted on an aerial imagery map.

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

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

The Project is located entirely within the existing AES Ohio property and right-of-way. The rebuild segments will be accessed directly from the roadside along Spring Valley Pike or from the existing Sugarcreek Substation.

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

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

AES Ohio proposes to install the new 69kV 6940 circuit from the existing Sugarcreek Substation to the existing Normandy Substation. The construction involves rebuilding one section of the existing 13806 circuit and one section of the existing 13822 circuit to carry the existing 138kV circuit(s) and the proposed 69kV circuit, spanning a total of approximately 2.07 miles. The line construction would consist of galvanized steel, double circuit monopoles with the conductor being 1351MCM 61-strand AAC. Additionally, portions of the existing 13822 and 13805 circuits will be reconfigured to allow for a 69kV substation expansion project at the existing Sugarcreek Substation.

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

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

This project consists of the installation of a new 69kV circuit and the rebuild of a 138kV single circuit to a double circuit to house the new 69kV line and the relocation of structures associated

with two 138kV circuits in support of a 69kV substation expansion project.

Voltage:	69kV/138 kV
Structure Type:	double circuit monopoles, galvanized steel and wood
Conductors:	1351MCM 61-strand AAC
Static Wire:	48-fiber OPGW and 3/8" ES Steel
Insulators:	69kV/138kV polymer braced post insulators, polymer strain insulators
Height:	ranging from 75' – 90' above ground
ROW:	Within existing AES Ohio Property and Right-of-way (ROW).

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

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

4906-6-05(B)(9)(b)(i) Calculated Electric and Magnetic Field Levels

Calculated electric and magnetic field strength levels at one meter above ground under the lowest conductors and at the edge of the right-of-way.

Because there are residences located within 100 feet of the proposed Project, an Electric and Magnetic Field (EMF) calculation study was performed by Enercon. The results of this study are included in Attachment B.

4906-6-05(B)(9)(b)(ii) Design Alternatives for EMF

A discussion of the applicant's consideration of design alternatives with respect to electric and magnetic fields and their strength levels, including alternate conductor configuration and phasing, tower height, corridor location, and right-of-way width.

The project takes place entirely within existing AES Ohio property and ROW and no new easement will be required, therefore no design alternatives were considered for the Project.

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

The estimated capital cost of the project.

The estimated capital cost of the Project is \$2.5 million.

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

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

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

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

The Project is located within Sugarcreek Township within Greene County and within unincorporated portions as well as the city of Centerville in Montgomery County. The Sugarcreek Township and the City of Centerville have Long-Range Land Use Plans. The proposed Project supports the goals of these plans by providing increased reliability of the

energy network, as well as meet regulatory standards to serve electricity to homes, schools, hospitals and businesses in the area, while limiting the need for new electrical infrastructure needed, as the project utilizes existing transmission line ROW, so as not to impact the inherent attractive rural character of the area. The Project is located within existing AES Ohio transmission line ROW, existing AES Ohio Substation property, and adjacent to road ROW.

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

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

There will be no anticipated impacts to agricultural land as a result of the Project.

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

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

The Ohio History Connection, Ohio's Historic Preservation Office (OHPO) online mapping system, was consulted to identify previously recorded cultural resources within 0.8 kilometer (0.5 mile) of the Project Area (the Study Area). This preliminary records check revealed eleven historic structures (MOT0200903, MOT0040903, GRE0038002, MOT0500103, MOT0008703, MOT0040703, MOT0038703, MOT0191603, MOT0191303, GRE0038502, MOT0040803) within the Project's review area. One of the historic structures, GRE0038502-Samuel Berryhill House, is currently listed on the National Register of Historic Places (NRHP) and one historic structure, MOT0040803-Marlay B Price House, was determined eligible for the NRHP although not listed.

In addition, there have been five previously recorded archaeological sites (33MY0734, 33MY0126, 33MY0733, 33MY0732, 33GR0070), two historic cemeteries (OGS15262-Hopewell, OGS8420-Sears/Quaker), and two archaeological surveys (MY12281-Phase I Survey for the Proposed Sugar Creek/South Holes Creek Sewer and Phase II Significance Evaluation of Site 33MY732, Montgomery County, Ohio and MY12973-Phase I Cultural Resources Survey for the Proposed Relocation of the Sugarcreek-Normandy 138Kv Circuit, Centerville, Montgomery County, Ohio).

Based on this review, the NRHP identified resources, GRE0038502-Samuel Berryhill House, and MOTO0040803-Marlay B Price House (listed above), will not be affected as the buildings and the properties do not intersect the current project alignment and no viewshed issues will occur, as the proposed line will be installed onto an existing transmission line structure and no new aboveground structures are proposed. All identified historic structures, cemeteries, and previously identified archaeological sites will not be affected by the Project. Should state or federal permitting become necessary, additional coordination with the OHPO may be required for the Project. Refer to Attachment C – Cultural Resources Review Figures.

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

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

As the Project is expected to disturb greater than one acre, a National Pollutant Discharge Elimination System (NPDES) Construction Site General Permit from the Ohio Environmental Protection Agency (Ohio EPA) for the rebuild is required. In addition to the NPDES permit, a pre-construction notification (PCN) will be submitted to the Huntington District of the United States Army Corps of Engineers for temporary and permanent impacts to wetlands as a result of the re-alignment of the 13822 and 13805 circuits as well as the installation of one 138kV/69kV double circuit structure (13806/6935) within wetland boundaries. Temporary impacts to wetlands will be in the form of construction matting for access and construction workspace. Compensatory mitigation will also be required for these wetland impacts.

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

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

Coordination with the U.S. Fish and Wildlife Service (USFWS) was initiated on October 29, 2020, in an effort to identify the Project's potential effect on any federally listed threatened or endangered species or critical habitat within a one-mile radius of the Study Area. A response from the USFWS was received November 16, 2020, regarding rare, threatened, and endangered (RTE) species located within the Study Area vicinity. The response from the USFWS indicated the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) are found within the Project vicinity. However, due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to the federally listed bat species, no adverse effects to any federally endangered, threatened, proposed or candidate species are expected to occur. A copy of the USFWS response can be found in Attachment D – Rare, Threatened, and Endangered Species Correspondence and is summarized below.

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

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

As a part of the investigation, GAI also conducted an investigation for areas of ecological concern. As a part of GAI's investigation, a request was submitted to the ODNR Natural Heritage Program on October 29, 2020, to research the presence of any unique ecological sites,

geological features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forest, national wildlife refuges, or other protected areas within one mile of the Project area, using the ODNR Natural Heritage Database (NHD). A response from the ODNR – Office of Real Estate was received on January 11, 2021. According to the NHD, one park, Sugarcreek Metro Park, is located within one mile of the project. No impacts or work associated with this LON will take place within the park.

As a part of the field investigation and ecological assessment, GAI conducted a Wetland Delineation and Stream Assessment Report of the Project Area. GAI's investigation included approximately 100-foot wide Study Area around the proposed centerline, access roads, and additional workspace areas. Results from GAI's field investigation can be found in Attachment E – Wetland Delineation and Stream Assessment Report (WDSIR). A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) revealed that no portions of the Project Area lie within the 100-year floodplain of an unnamed tributary to Sugar Creek and within the 100-year floodplain and floodway of Sugar Creek.

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

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

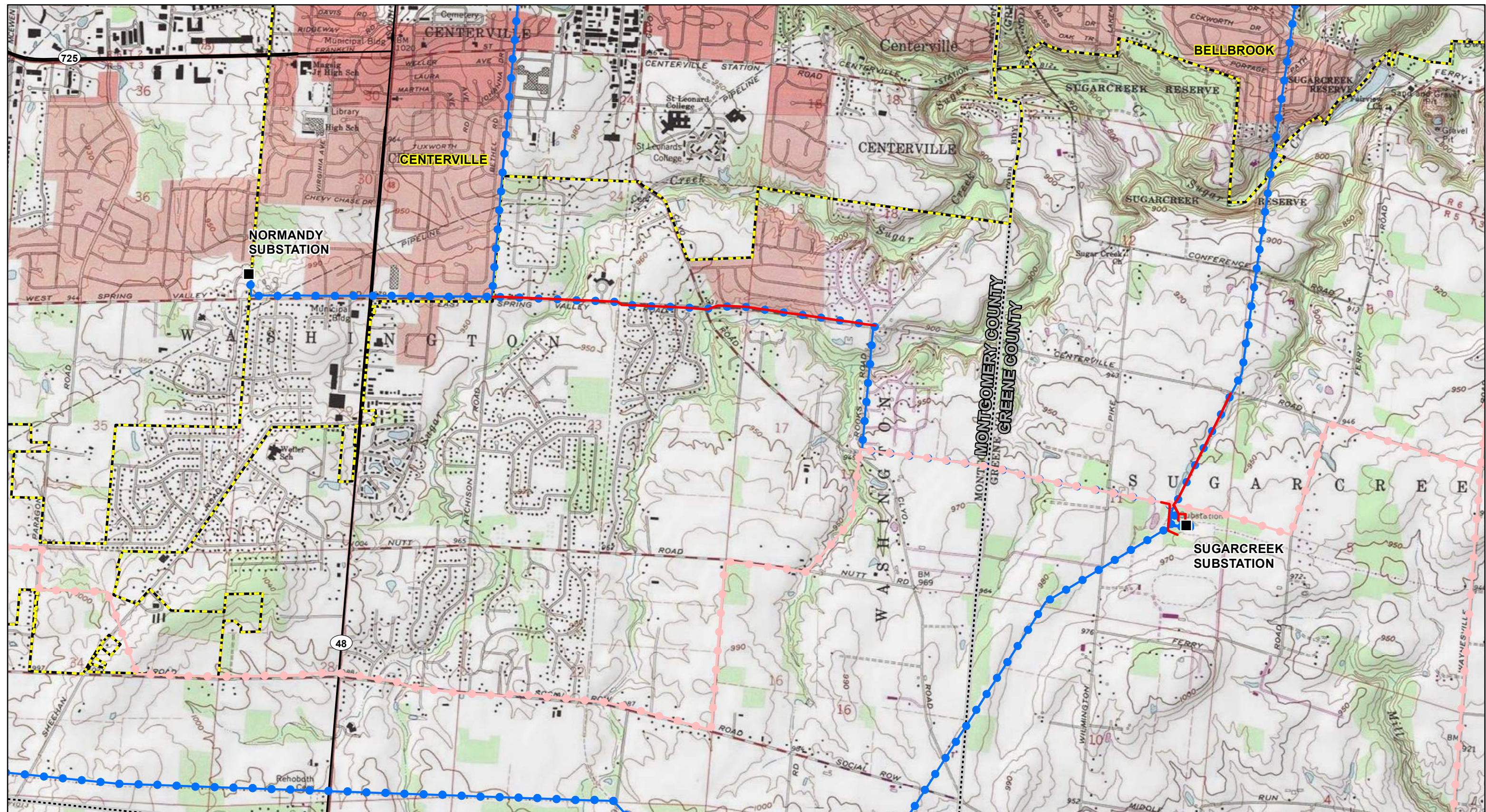
To the best of AES Ohio's knowledge, no unusual conditions exist that would result in environmental, social, health, or safety impacts. Construction and operation of the proposed Project will meet all applicable safety standards established by the Occupational Safety and Health Administration and will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

4906-6-08: Public notice for letter of notification applications

Within seven days of the filing of a letter of notification application, the applicant shall give public notice in newspapers of general circulation in the project area and shall supply the board with proof of such publication no later than thirty days from the date of publication. The applicant is permitted to correct any inadvertent failure of service or publication, provided substantial compliance with these requirements is met. The notice shall occupy not less than one-fourth of each newspaper's standard page, with letters not less than ten-point type and shall bear the heading "Notice of Proposed Major Utility Facility" in bold letters not less than one-fourth inch high or thirty-point type.

A newspaper notice will be provided in the Dayton Daily News within 7 days of filing this application, consisting of no less than a fourth of a standard page. Similarly, proof of publication within 30 days of the date of publication will be provided. Within seven days of filing this Letter of Notification, notice will be sent to each property owner affected by the Project, with a description of the project, a map showing the location and layout of the Project, the location of where accessible copies of this LON are available, and a statement including the assigned docket number that this LON is now pending before the board. This letter will also describe how to participate and comment in the board's proceedings.

Attachment A – Figures



PROJECT LOCATION

GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
 TOPOGRAPHIC MAP:
 - Esri's USA Topo Map, Accessed: 5/25/2021.
 INCORPORATED AREA:
 - Ohio Department of Transportation's Cities, 9/11/2018.
 COUNTY BOUNDARY:
 - Ohio Department of Transportation's Counties, 9/11/2018.
 HIGHWAY:
 - Esri's U.S. Major Roads, 5/10/2018.
 PROJECT DETAILS:
 - AES Ohio.

— State Highway	■ Existing Facility	● Existing 69kV Transmission Line
▭ Incorporated Area	— Route Centerline	● Existing 138kV Transmission Line
▭ County Boundary		

aes Ohio

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 1 in = 2,000 feet

North Arrow

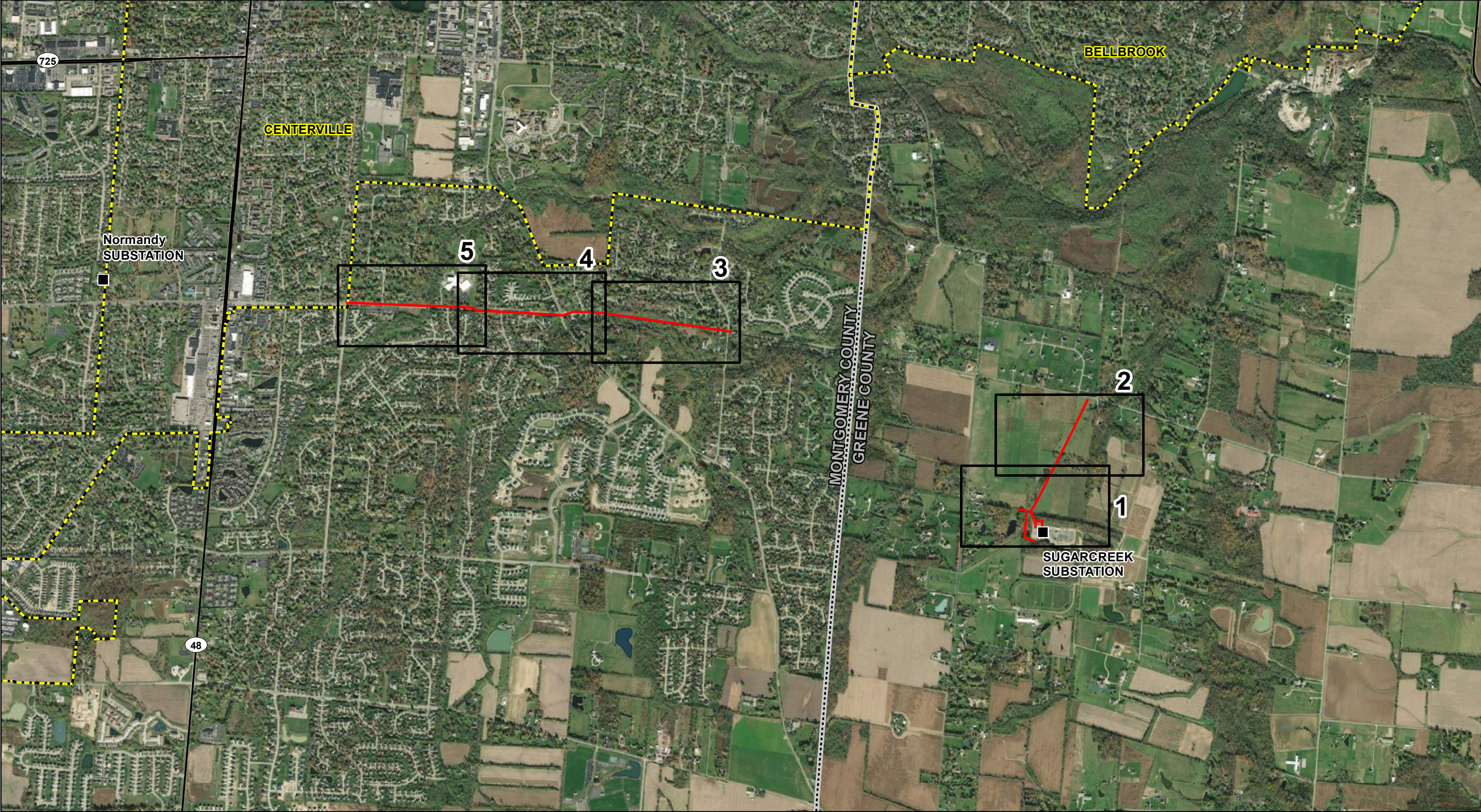
FIGURE 1
 PROJECT LOCATION

Ohio Power Siting Board Letter of Notification

Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
 CHECKED: TDB

DATE: 5/25/2021
 APPROVED: MRW



PROJECT LOCATION



GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
AERIAL PHOTOGRAPH:
- Esri's World Imagery 2020, Accessed: 5/25/2021.
INCORPORATED AREA:
- Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY:
- Ohio Department of Transportation's Counties, 9/11/2018.
HIGHWAY:
- Esri's U.S. Major Roads, 5/10/2018.
PROJECT DETAILS:
- AES Ohio.

— State Highway	■ Existing Facility
--- Incorporated Area	— Route Centerline
--- County Boundary	□ Sheet Index

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1 in = 2,000 feet

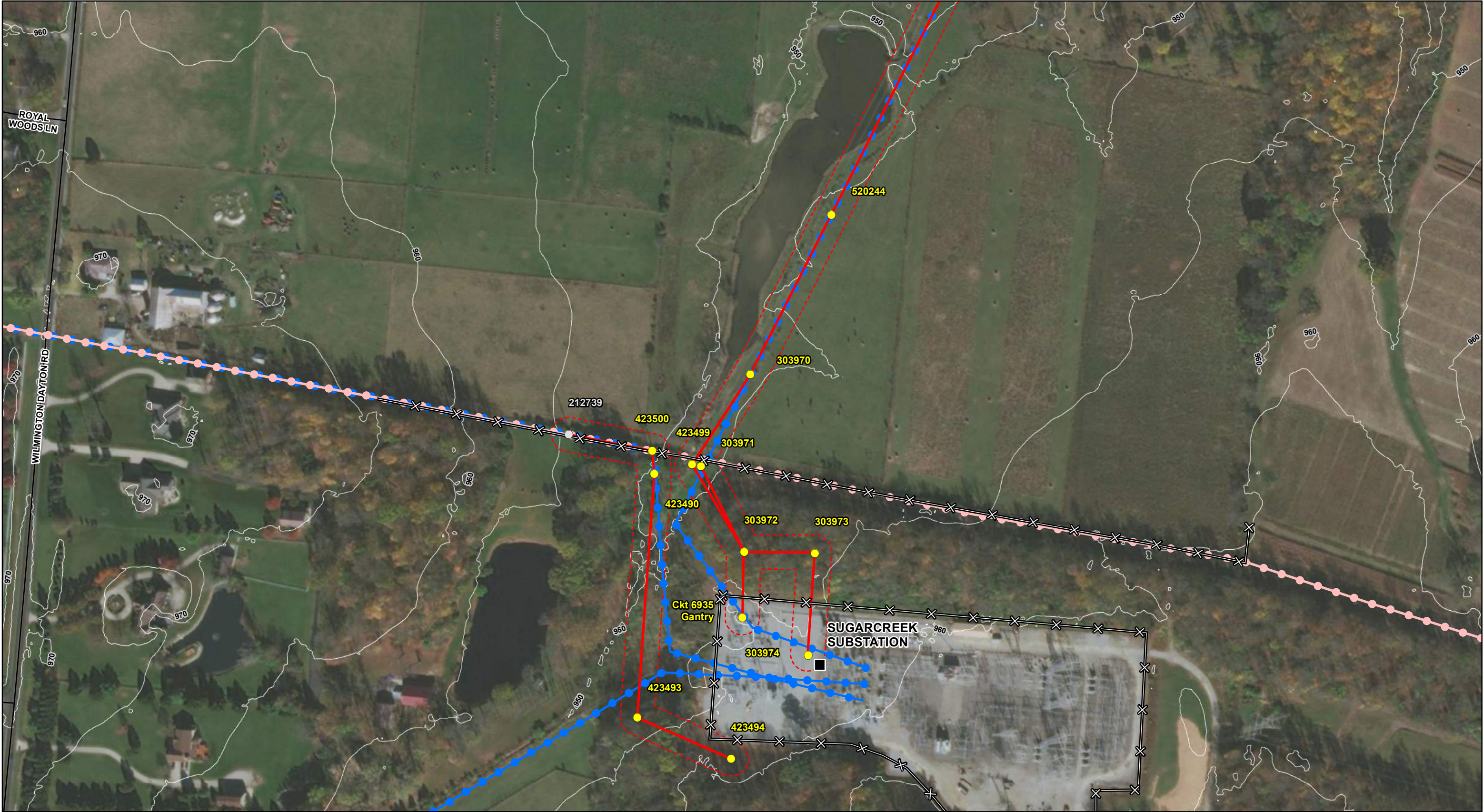


**FIGURE 2
PROJECT LAYOUT
SHEET INDEX**

Ohio Power Siting Board Letter of Notification
Sugarcreek-Normandy Circuit Addition Project

**DRAWN BY: MBH
CHECKED: TDB**

**DATE: 5/25/2021
APPROVED: MRW**



PROJECT LOCATION

GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
AERIAL PHOTOGRAPH:
- Esri's World Imagery 2020, Accessed: 5/25/2021.
INCORPORATED AREA:
- Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY:
- Ohio Department of Transportation's Counties, 9/11/2018.
HIGHWAY:
- Esri's U.S. Major Roads, 5/10/2018.
LOCAL ROAD:
- Ohio Department of Transportation's Roads, 9/11/2018.
5-FOOT CONTOUR:
- Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.
PROJECT DETAILS:
- AES Ohio.

State Highway	Existing Facility	Fence	Existing 69kV Transmission Line
Local Road	Existing Structure	5-Foot Contour	Existing 138kV Transmission Line
Incorporated Area	Proposed Structure		
County Boundary	Route Centerline		
	Approximate ROW		

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1 in = 200 feet

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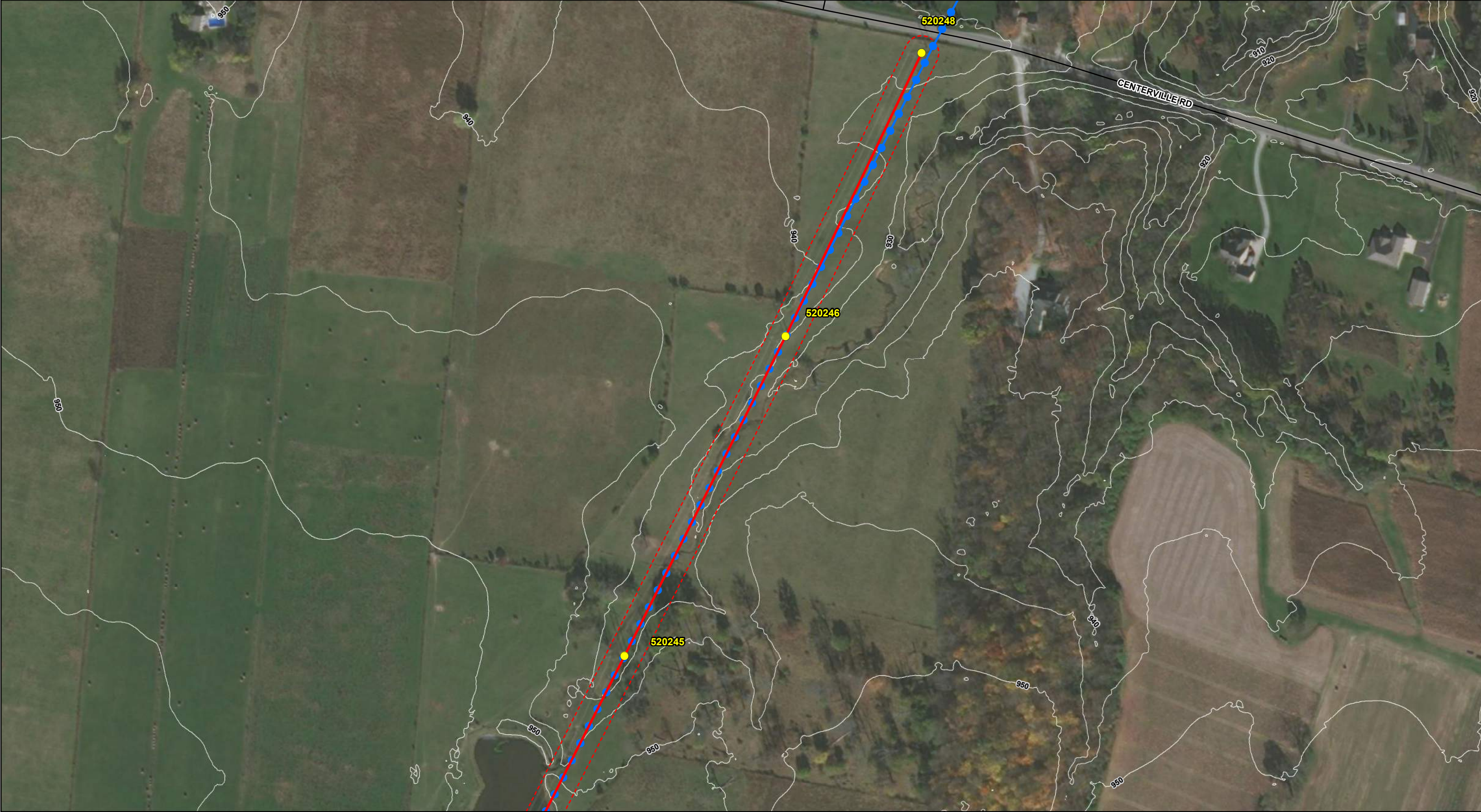
**FIGURE 2
PROJECT LAYOUT**

SHEET 1 of 5


Ohio Power Siting Board Letter of Notification
Sugarcreek-Normandy Circuit Addition Project

**DRAWN BY: MBH
CHECKED: TDB**

**DATE: 5/25/2021
APPROVED: MRW**



PROJECT LOCATION



GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
AERIAL PHOTOGRAPH:
- Esri's World Imagery 2020, Accessed: 5/25/2021.
INCORPORATED AREA:
- Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY:
- Ohio Department of Transportation's Counties, 9/11/2018.
HIGHWAY:
- Esri's U.S. Major Roads, 5/10/2018.
LOCAL ROAD:
- Ohio Department of Transportation's Roads, 9/11/2018.
5-FOOT CONTOUR:
- Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.
PROJECT DETAILS:
- AES Ohio.

— State Highway	■ Existing Facility	⚡ Fence	— Existing 69kV Transmission Line
— Local Road	○ Existing Structure	▬ 5-Foot Contour	— Existing 138kV Transmission Line
▨ Incorporated Area	● Proposed Structure		
▤ County Boundary	— Route Centerline		
	- - - Approximate ROW		

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0 100 200 Feet
1 in = 200 feet



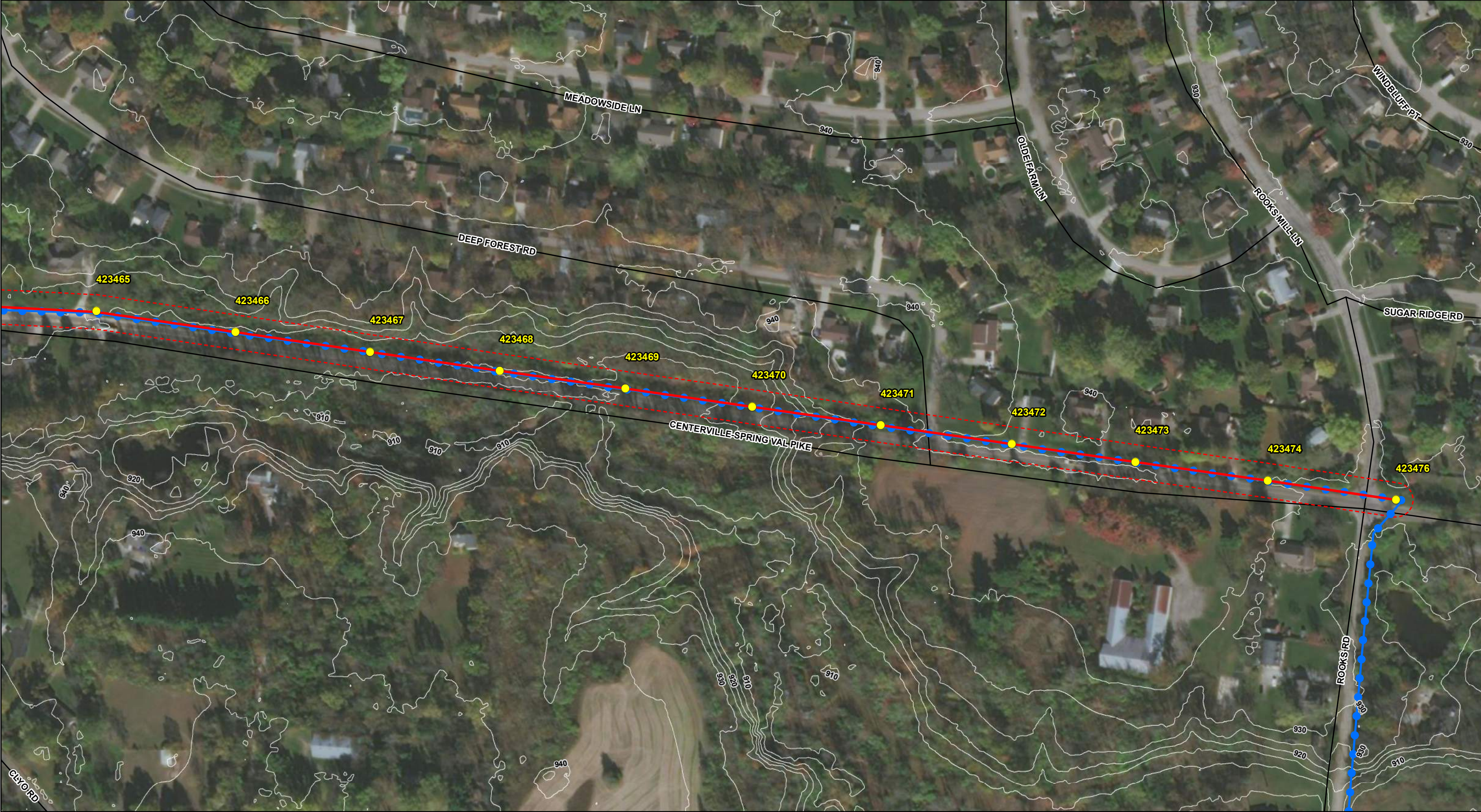
**FIGURE 2
PROJECT LAYOUT**

SHEET 2 of 5

Ohio Power Siting Board Letter of Notification
Sugarcreek-Normandy Circuit Addition Project

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APPROVED: MRW**



PROJECT LOCATION



GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
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INCORPORATED AREA:
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PROJECT DETAILS:
- AES Ohio.

State Highway	Existing Facility	Fence	Existing 69kV Transmission Line
Local Road	Existing Structure	5-Foot Contour	Existing 138kV Transmission Line
Incorporated Area	Proposed Structure		
County Boundary	Route Centerline		
	Approximate ROW		

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1 in = 200 feet



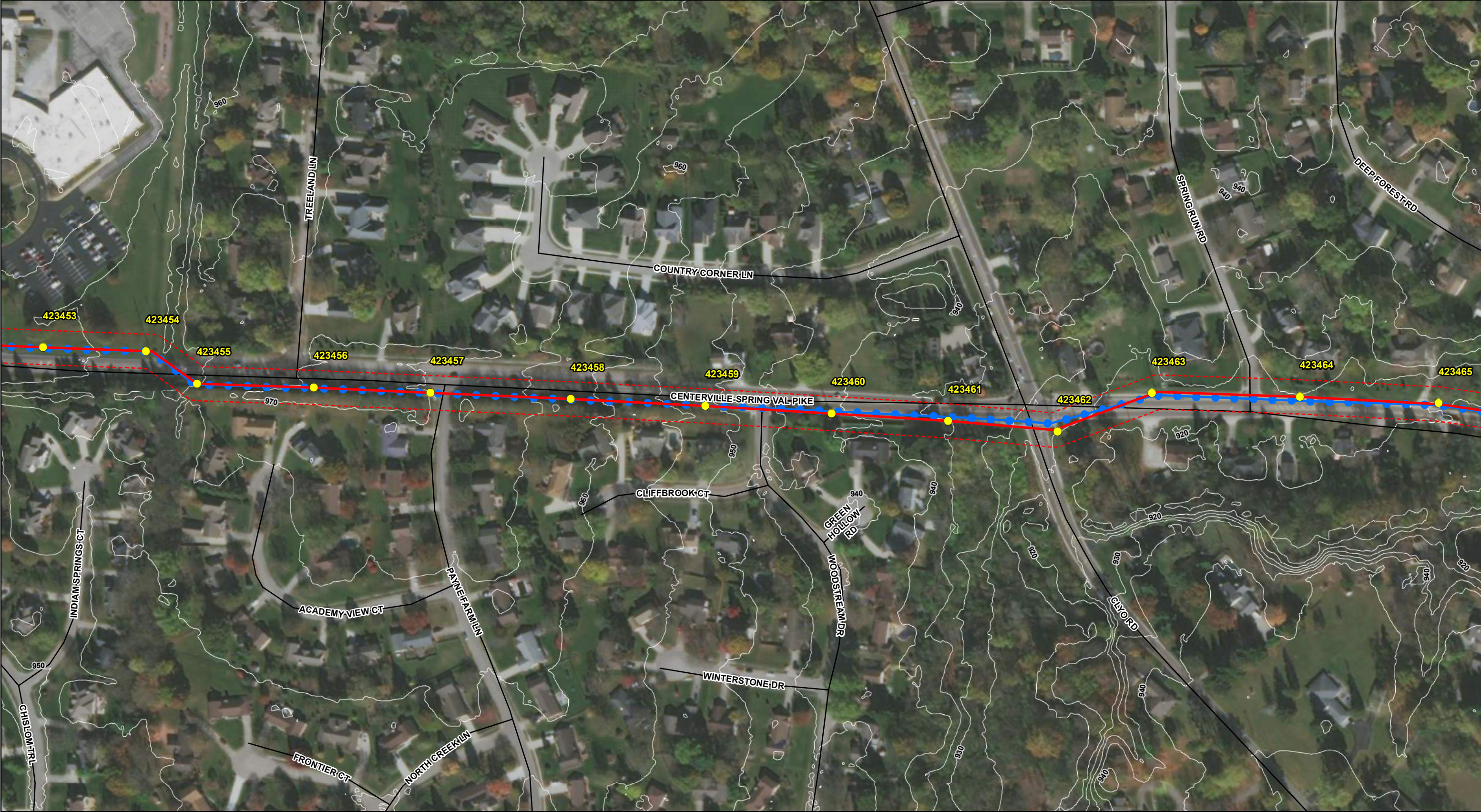
FIGURE 2
PROJECT LAYOUT

SHEET 3 of 5

Ohio Power Siting Board Letter of Notification
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
CHECKED: TDB

DATE: 5/25/2021
APPROVED: MRW



PROJECT LOCATION

GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
AERIAL PHOTOGRAPH:
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INCORPORATED AREA:
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LOCAL ROAD:
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PROJECT DETAILS:
- AES Ohio.

State Highway	Existing Facility	Fence	Existing 69kV Transmission Line
Local Road	Existing Structure	5-Foot Contour	Existing 138kV Transmission Line
Incorporated Area	Proposed Structure		
County Boundary	Route Centerline		
	Approximate ROW		

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0 100 200 Feet
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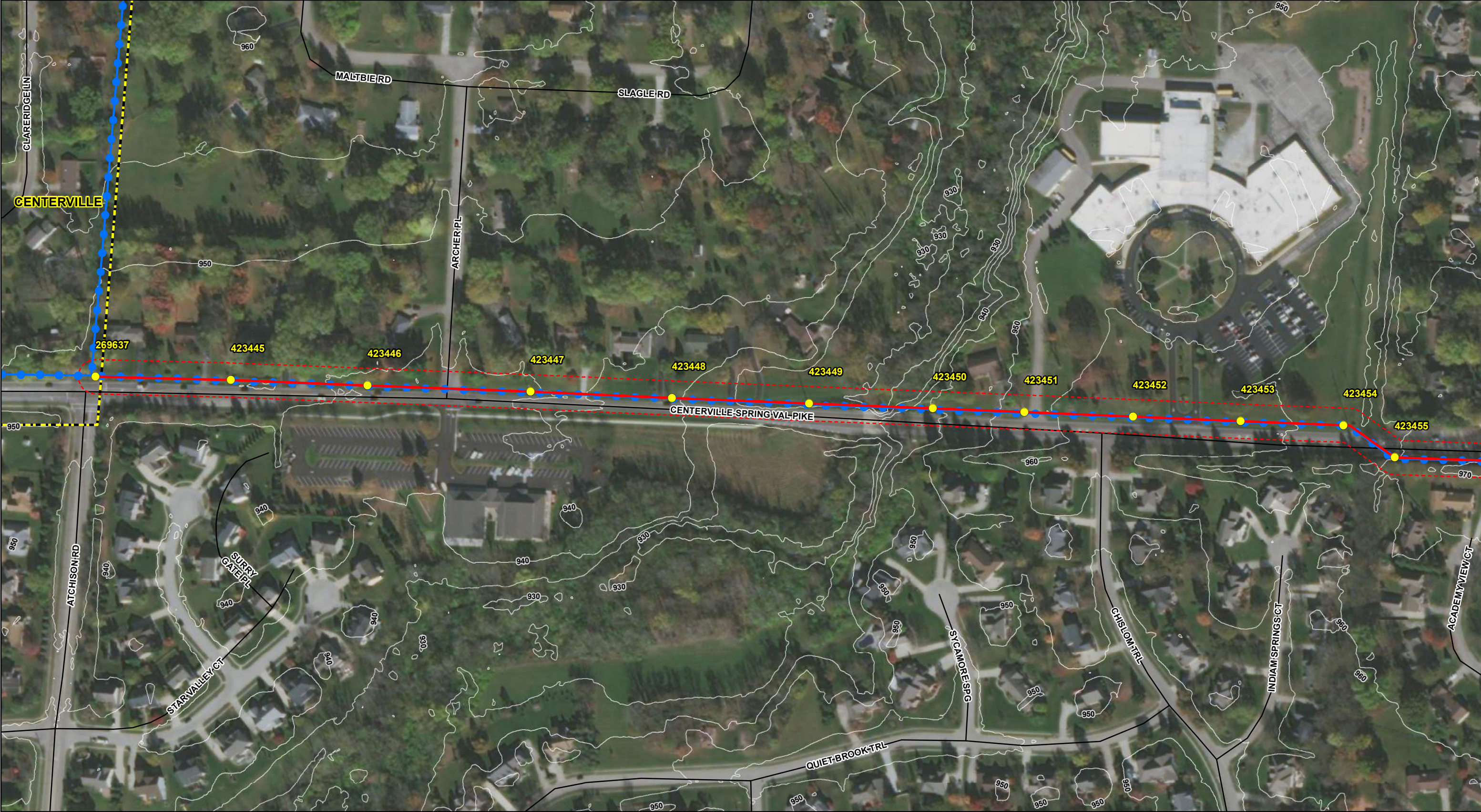
**FIGURE 2
PROJECT LAYOUT**

SHEET 4 of 5

Ohio Power Siting Board Letter of Notification
Sugarcreek-Normandy Circuit Addition Project

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GREENE AND MONTGOMERY COUNTY, OH

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— Local Road	○ Existing Structure	▬ 5-Foot Contour	— Existing 138kV Transmission Line
▬ Incorporated Area	● Proposed Structure		
▬ County Boundary	— Route Centerline		
	▬ Approximate ROW		

aes Ohio

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0 100 200 Feet
1 in = 200 feet



FIGURE 2
PROJECT LAYOUT

SHEET 5 of 5

Ohio Power Siting Board Letter of Notification
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
CHECKED: TDB

DATE: 5/25/2021
APPROVED: MRW

Attachment B – Electric and Magnetic Field Levels Study



**DAYTON, OHIO
NEW 69 kV TRANSMISSION LINE
SUGARCREEK – NORMANDY
CIRCUIT 6940**

EMF Report

May 24, 2021

Submitted by:



ENERCON SERVICES, INC.

500 TownPark Lane ♦ Kennesaw, GA 30144
Telephone: (770) 919-1931 ♦ Facsimile: (770) 919-1932



Design Engineer: Kevin Oliveira
Date: May 11, 2021

Peer Review: Alana Stuart
Date: May 24, 2021

Engineering Review: Mitchell Mosher, P.E.
Date: May 24, 2021

PROJECT DESCRIPTION

As part of its continuing reliability improvements in the South Dayton area, AES Ohio (AES) intends to construct a new 69kV transmission circuit to run between its existing Sugarcreek Substation and existing Normandy Substation. The route has been selected and provided by AES. The project is located in the City of Centerville and the Washington Township in Montgomery County Ohio and the Sugarcreek Township in Greene County Ohio. The new circuit will be designated as Circuit 6940.

Portions of the new proposed line will require re-framing existing AES owned 138kV transmission circuits TL13806 & TL13822. The new line configuration will be a 138kV/69kV double circuit in these areas. This report will detail the electric field and magnetic field effects of the new double circuit configuration of selected sections of the proposed line.

Electric and Magnetic Fields

In accordance with Ohio Power Siting Board (OPSB) requirements specified in OAC 4906-5-07(A)(2), the following report discusses the analysis of electric and magnetic fields (EMF) associated with the proposed transmission line project.

EMF magnitudes were calculated at three representative cross-sections of the proposed transmission line design. These representative cross sections were:

- **Cross-Section 1:** 138kV/69kV double circuit between Sugarcreek Substation and Centerville Road. ENERCON assumes up to a 100ft width right-of-way (ROW). **Figure 1.**
- **Cross-Section 2:** 138kV/69kV double circuit braced-post structure framing between Rooks Road tap structure and Atchinson Road tap structure. Transmission circuits only. ENERCON assumes up to a 60ft width ROW with poles on centerline. **Figure 2.**
- **Cross-Section 2A:** 138kV/69kV double circuit braced-post structure framing between Rooks Road tap structure and Atchinson Road tap structure. Transmission circuits and three-phase 12.47kV underbuild. **Figure 3.**
- **Cross-Section 3:** 138kV/69kV double circuit deadend structure framing between Rooks Road tap structure and Atchinson Road tap structure. Transmission circuits only. ENERCON assumes up to a 60ft width ROW with poles on centerline. **Figure 4.**
- **Cross-Section 3A:** 138kV/69kV double circuit deadend structure framing between Rooks Road tap structure and Atchinson Road tap structure. Transmission circuits and three-phase 12.47kV underbuild. **Figure 5.**

Cross-Sections 2 and 3 are in a section where the existing transmission line has 3-phase 12.47kV distribution underbuild. These sections were analyzed with only the 138kV & 69kV conductors considered and considering distribution underbuild. Cross-Section 1 is not designed for current or future underbuild and was only analyzed for transmission conductors.

The 138kV transmission phase conductors are modelled as 1.386" diameter 1351kcmil "Dipper" ACSR conductor in Cross Section 1 with a 0.664" diameter 211.3kcmil "Cochin" ACSR cable in the shield position. For the 138kV circuit in Cross Sections 2 & 3, the phase conductor is modelled as 1.334" diameter 1351kcmil "Columbine" AAC conductor with a 0.375" diameter galvanized steel ground wire in the shield position. Phase conductors are 1.386" diameter "Dipper" ACSR for all sections of the proposed 69kV circuit with a 0.565" diameter fiber-optic core ground wire (OPGW) in the shield position. In areas with underbuild, structures and clearances are designed for future 3-phase 12.47kV distribution circuit with 1.026" diameter 795kcm "Arbutus" AAC phase conductor and a 0.563" diameter 4/0 AWG stranded "Penguin" ACSR neutral conductor.

Figures 1 – 5 show the representative cross sections analyzed and the phasing configuration for all circuits.

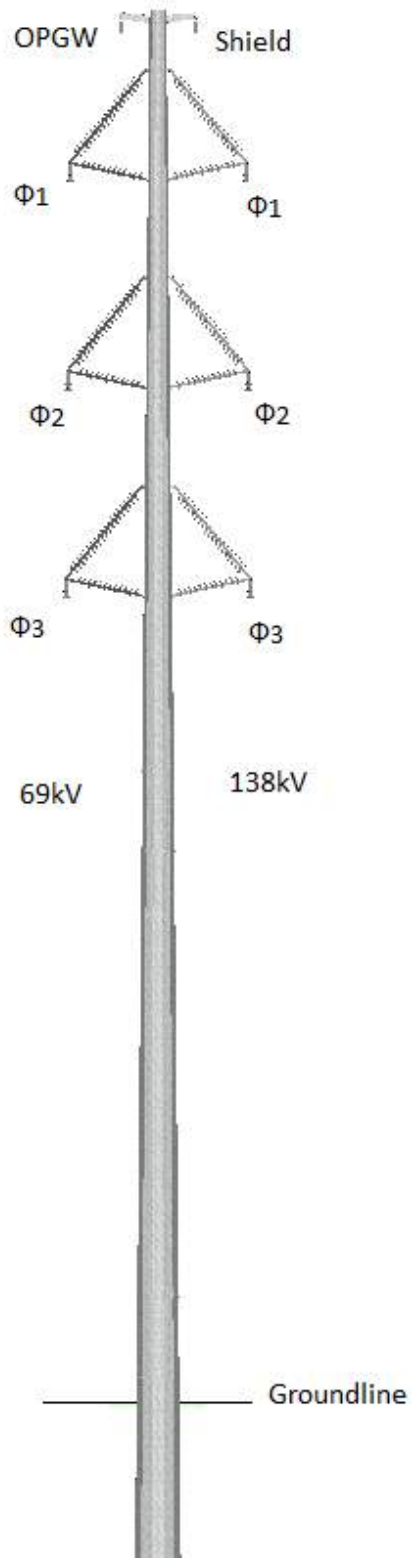


Figure 1 – Typical cross-section model used for EMF calculations for Section 1. Looking north down line. Area of Study 50ft either side of pole centerline.

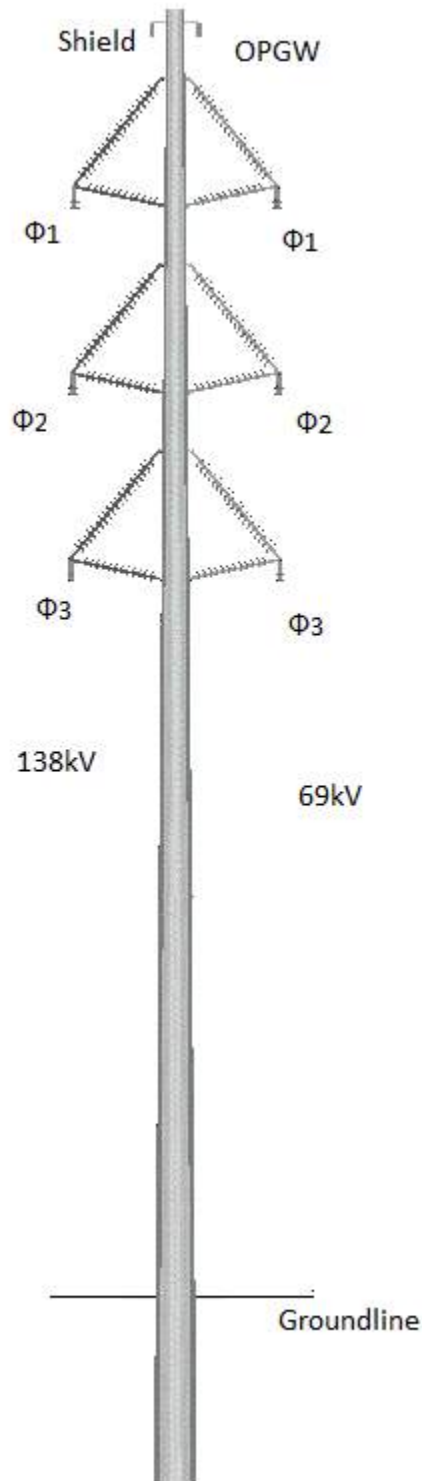


Figure 2 – Typical cross-section model used for EMF calculations for Section 2. Looking west down line. Area of Study 30ft either side of pole centerline.

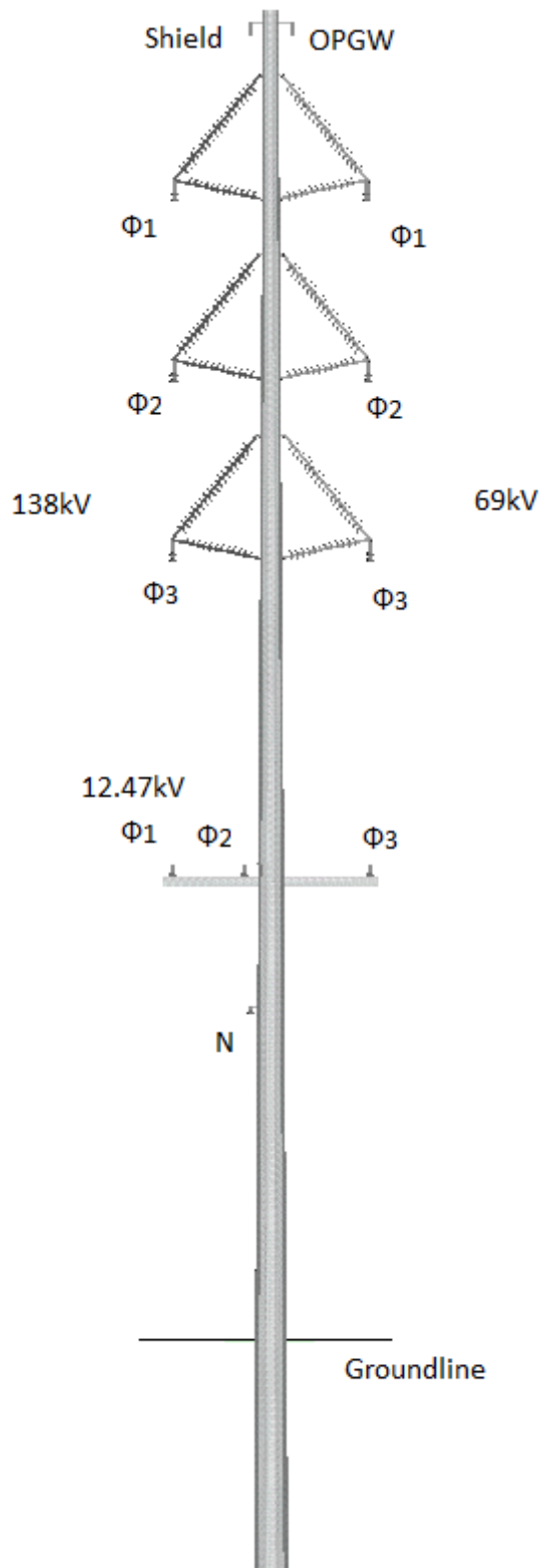


Figure 3 – Typical cross-section model used for EMF calculations for Section 2A.
Looking west down line. Area of Study 30ft either side of pole centerline.

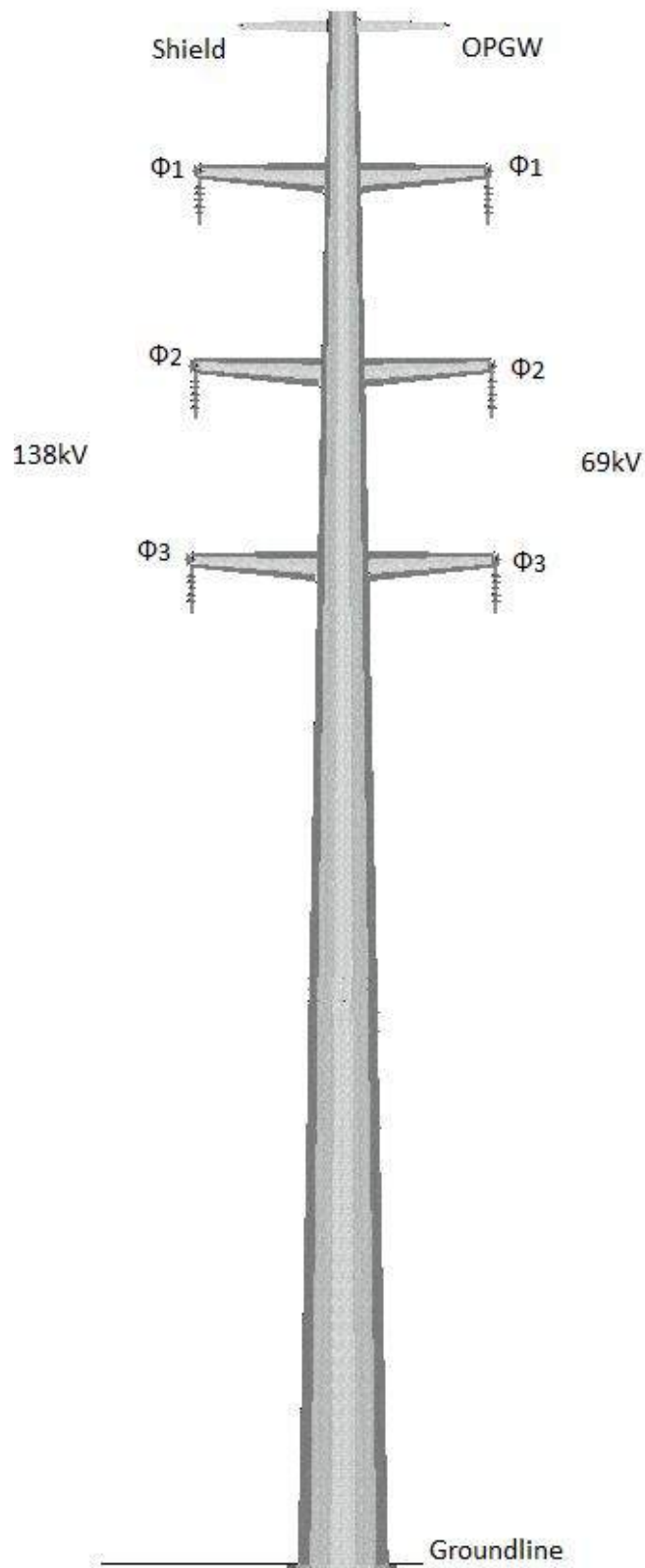


Figure 4 – Typical cross-section model used for EMF calculations for Section 3. Looking west down line. Area of Study 30ft either side of pole centerline.

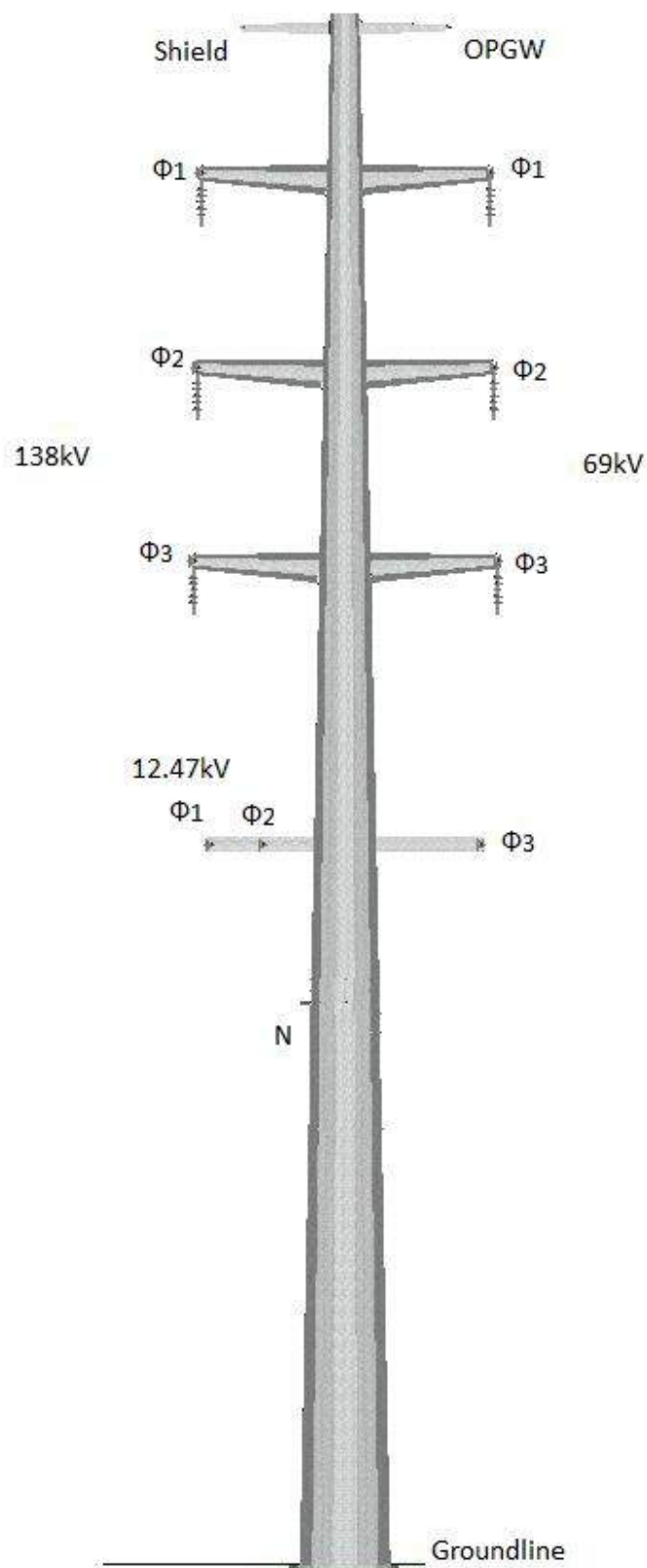


Figure 5 – Typical cross-section model used for EMF calculations for Section 3A.
Looking west down line. Area of Study 30ft either side of pole centerline.

Calculated Electric and Magnetic Field Strength Levels

Calculations in this report were performed using the 2D EMF calculations module in the PLS-CADD program. PLS-CADD is the industry standard 3D line modelling software for overhead power lines. The 2D EMF calculations module in PLS-CADD are based on the Electric Power Research Institute (EPRI) **Red Book, 2nd Edition** method and utilizes exact electric and magnetic field solutions for two-dimensional cross-section models that assume infinite straight-line conductors at a constant height. The mid-span sag height for each cross section is used for the calculations to arrive at estimates of worst-case field magnitudes, as electric and magnetic field magnitudes generally decrease with an increase in conductor height from the ground.

Tables 1-3 lists the coordinates for each of the phase conductors, shield wires, and neutral as modelled in the representative cross-sections. Dimensions are in feet with horizontal (x) values relative to the pole center line and conductor heights (z) relative to ground level for the section based on conductor sag at maximum operating temperature.

Cross Section 1									
Circuit	Voltage	φ1		φ2		φ3		Shield	
		x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)
13806	138kV	6.48	47.38	6.67	35.88	6.85	24.37		
	Shield (0kV)							3.87	65.31
6940	69kV	-6.51	47.51	-6.7	36.02	-6.89	24.52		
	OPGW (0kV)							-3.79	64.37

Table 1 – Conductor geometry for Cross Section 1.

Cross Section 2									
Circuit	Voltage	φ1		φ2		φ3		Shield	
		x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)
13822	138kV	-5.37	65.57	-5.44	55.57	-5.51	45.57		
	Shield (0kV)							-1.2	81.12
6940	69kV	5.34	65.8	5.41	55.8	5.48	45.8		
	OPGW (0kV)							1.17	80.4
Cross Section 2A									
Circuit	Voltage	φ1		φ2		φ3		Shield	
		x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)
13822	138kV	-5.37	65.57	-5.44	55.57	-5.51	45.57		
	Shield (0kV)							-1.2	81.12
6940	69kV	5.34	65.8	5.41	55.8	5.48	45.8		
	OPGW (0kV)							1.17	80.4
Underbuild	12.47kV	5.5	30.1	-1.5	30.1	-5.5	30.1		
	Neutral (0kV)							-1.19	23.93

Table 2 – Conductor geometry for Cross Section 2 & 2A. (without and with 12.47kV underbuild).

Cross Section 3									
Circuit	Voltage	$\phi 1$		$\phi 2$		$\phi 3$		Shield	
		x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)
13822	138kV	7.22	65.8	7.42	55.81	7.61	45.81		
	Shield (0kV)							5.13	76.75
6940	69kV	-7.25	65.49	-7.45	55.49	-7.64	45.49		
	OPGW (0kV)							-5.14	77.39
Cross Section 3A									
Circuit	Voltage	$\phi 1$		$\phi 2$		$\phi 3$		Shield	
		x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)	x(ft)	z(ft)
13822	138kV	7.22	65.8	7.42	55.81	7.61	45.81		
	Shield (0kV)							5.13	76.75
6940	69kV	-7.25	65.49	-7.45	55.49	-7.64	45.49		
	OPGW (0kV)							-5.14	77.39
Underbuild	12.47kV	6.76	31.75	-4.18	31.71	-6.78	31.7		
	Neutral (0kV)							-0.03	26.55

Table 3 - Conductor geometry for Cross Section 3 & 3A. (without and with 12.47kV underbuild).

Electric and magnetic field magnitudes are calculated for each of the cross-sections at two-foot intervals along paths crossing beneath the line at a height of 3.28ft (1m) above ground level. For the purpose of the EMF calculations, the Area of Study in Cross Section 1 was 50ft to either side of pole centerline. For Cross Sections 2 & 3, the Area of Study was 30ft either side of pole centerline. Results are reported across the width of the Area of Study.

Electric Field Strength Results

Electric fields are calculated assuming phase-to-phase voltages at 105% of the rated line voltage, or 72.5kV for the 69kV circuit and 145kV for the 138kV circuit. The distribution underbuild was analyzed using 15kV phase-to-phase voltage. The transmission phase angles are taken as 120° apart. The 12.47kV distribution system is stepped down from transmission voltage via delta-wye connected transformers, and thus the 12.47kV phase angles are assumed to be behind the transmission circuit by 30°.

The largest electric fields occur in Cross-Section 1 with a maximum of 2.859 kV/m approximately 4ft east of pole centerline. The transmission conductors are significantly lower to the ground in this area where there is no existing or future underbuild planned. The largest electric field value in Cross-Sections 2 & 3 is 0.397 kV/m in Section 3 approximately 12ft north of centerline. The values in Sections 2 and 3 are slightly higher when the underbuild circuit is considered.

Figures 6 & 7 show the electric field values across the Area of Study for each of the cross-sections considered.

Electric and magnetic field calculation results are summarized in **Table 4** on the following page.

Table 4 – Electric and magnetic field results summary listing of the calculated rms field magnitudes, electric fields in kV/m and magnetic fields in units of milligauss (mG) at each edge of study area (EAoS) and maximum beneath line.

Model		Electric Field (kV/m)	Magnetic Field (mG)			
Cross Section	Description	105% Nominal Voltage (EAoS/MAX/EAoS)	Summer Normal Load	Summer Emergency	Winter Normal Load	Winter Emergency
1	69kV/138kV Double Circuit Vertical	.0035/2.859/.04	95.56 – W edge	125.71 – W edge	127.43 – W edge	138.44 – W edge
			325.45 – MAX	435.64 – MAX	434.1 – MAX	470.73 – MAX
			95.56 – E edge	129.26 – E edge	127.5 – E edge	138.01 – E edge
2	69kV/138kV Double Circuit Vertical Tan.	0.253/0.346/0.187	79.13 – S Edge	106.30 – S Edge	105.56 – S Edge	114.36 – S Edge
			104.98 – MAX	140.10 – MAX	140.03 – MAX	151.85 – MAX
			78.96 – N Edge	104.62 – N Edge	105.30 – N Edge	114.29 – N Edge
2A	69kV/138kV Double Circuit Vertical Tan. With 3-ph. 12kV u/b	0.297/0.396/0.126	94.1 – S Edge	126.044 – S Edge	127.69 – S Edge	136.254 – S Edge
			124.328 – MAX	166.194 – MAX	169.606 – MAX	180.145 – MAX
			69.053 – N Edge	91.965 – N Edge	91.316 – N Edge	99.821 – N Edge
3	69kV/138kV Double Circuit Vertical DE	0.182/0.397/0.301	78.25 – S Edge	103.35 – S Edge	104.35 – S Edge	113.31 – S Edge
			101.42 – MAX	135.25 – MAX	135.27 – MAX	146.71 – MAX
			77.90 – N Edge	104.89 – N Edge	103.92 – N Edge	112.56 – N Edge
3A	69kV/138kV Double Circuit Vertical DE With 3-ph. 12kV u/b	0.227/0.343/0.23	96.901 – S Edge	127.28 – S Edge	131.93 – S Edge	140.656 – S Edge
			124.892 – MAX	163.983 – MAX	171.036 – MAX	181.387 – MAX
			67.372 – N Edge	90.292 – N Edge	89.303 – N Edge	97.348 – N Edge

Magnetic Field Strength Results

Magnetic field calculations were performed for the cross-sections considered under four electrical load scenarios: summer normal, summer emergency, winter normal, and winter emergency. The power flow ratings for these scenarios are listed in **Table 5**. Balanced three-phase currents are assumed for all calculations.

Load Condition	138kV Circuit		69kV Circuit		12.47kV Circuit	
	MVA	3-Φ Amps	MVA	3-Φ Amps	MVA	3-Φ Amps
Summer Normal	301 MVA	1,259	151 MVA	1,263	13 MVA	602
Summer Emergency	430 MVA	1,799	187 MVA	1,565	17 MVA	787
Winter Normal	402 MVA	1,682	201 MVA	1,682	19 MVA	880
Winter Emergency	432 MVA	1,807	220 MVA	1,841	19MVA	880

Table 5 – Electrical Load ratings and cable ampacities.

Again, the largest values for magnetic field strength were found in Cross-Section 1 where the conductors were closest to the ground, with a maximum value of 470.73mG for the highest electrical loading near the pole centerline.

Magnetic field strength in the cross-sections with 12.47kV underbuild was somewhat greater when considering the transmission with underbuild circuits. Magnetic field strength increased as electrical load increased. The maximum field strength in these sections was found in Cross-Section 2 for the “winter emergency” electrical loading on transmission and distribution circuits, yielding a value of 181.39mG roughly 8ft south of pole centerline.

Figures 8 – 12 plot the magnetic field strengths across the Area of Study for the various cross sections and electrical loads.

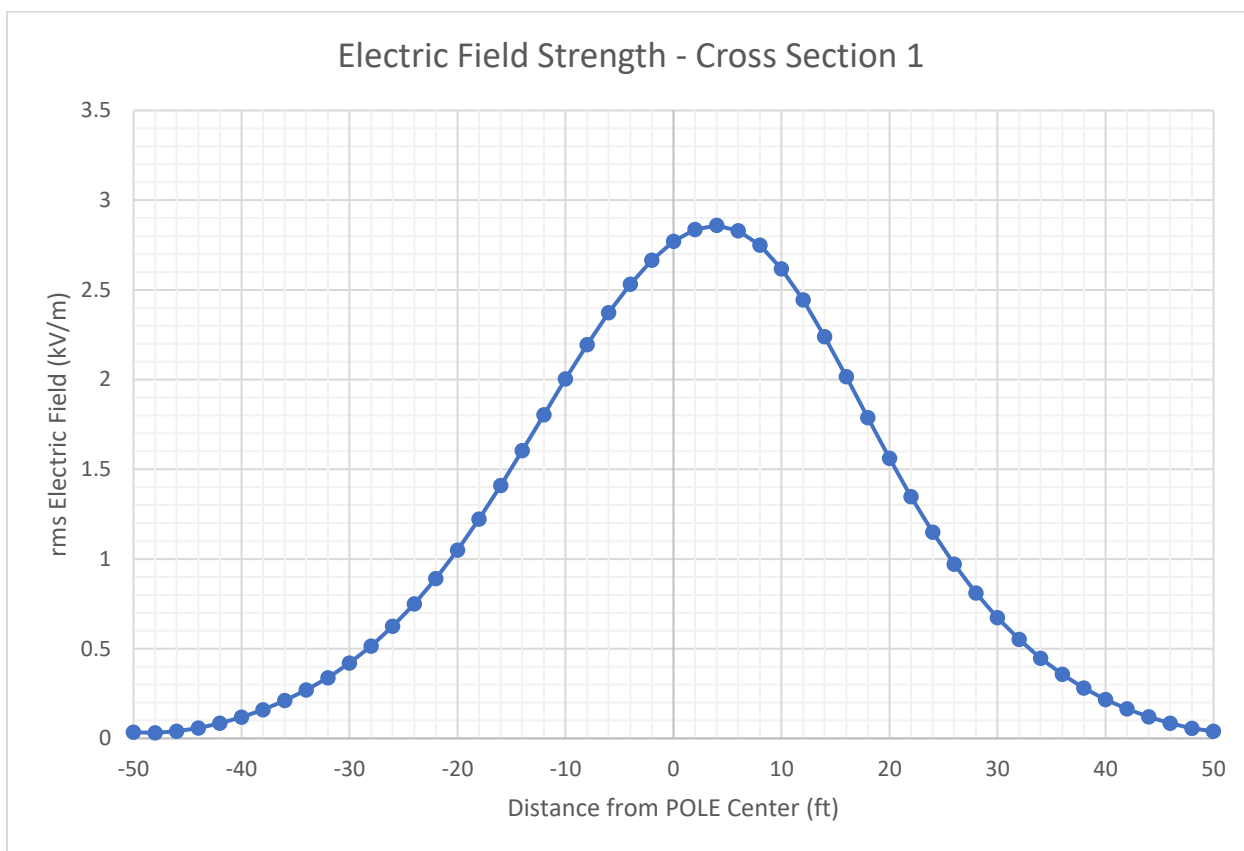


Figure 6 – Electric field strength at Cross-Section 1.

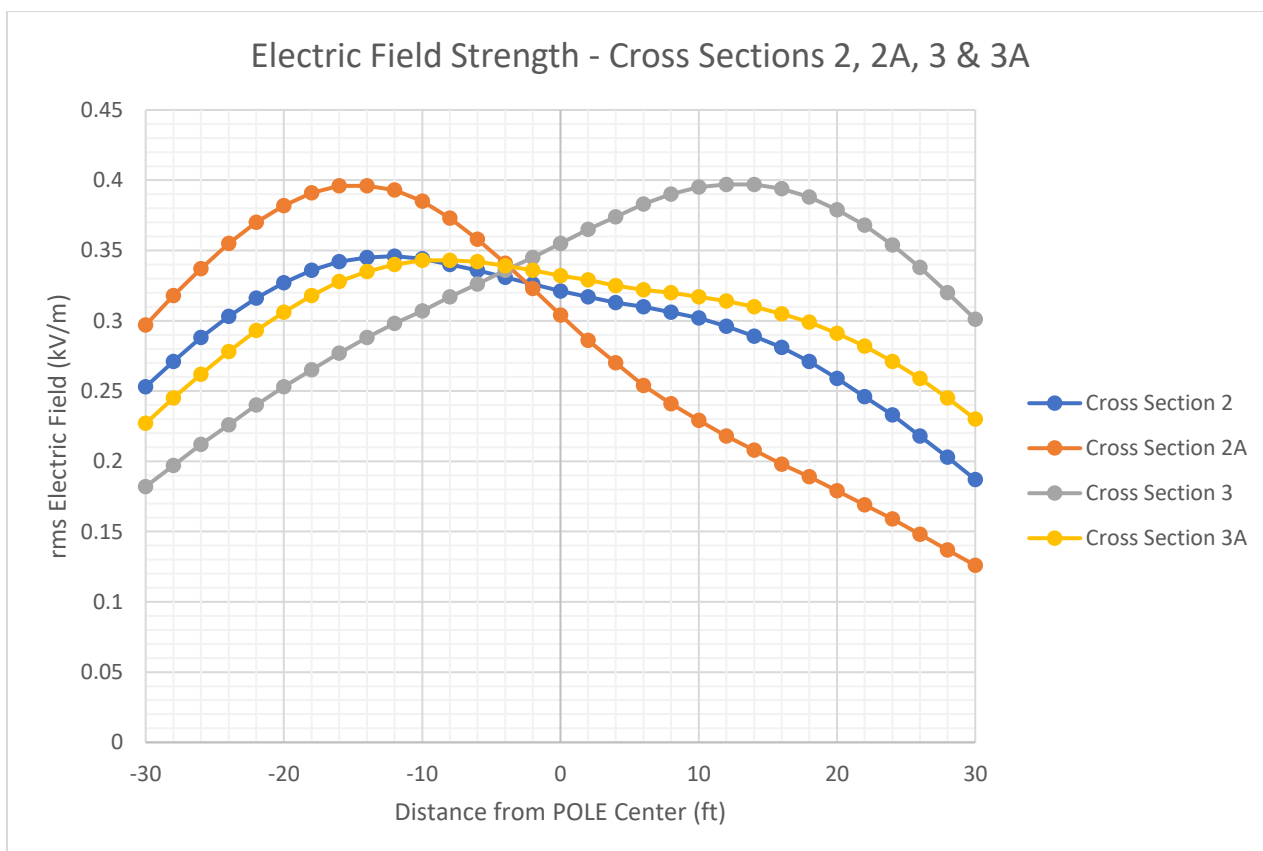


Figure 7 – Electric field strengths at Cross-Sections 2, 2A, 3, & 3A.

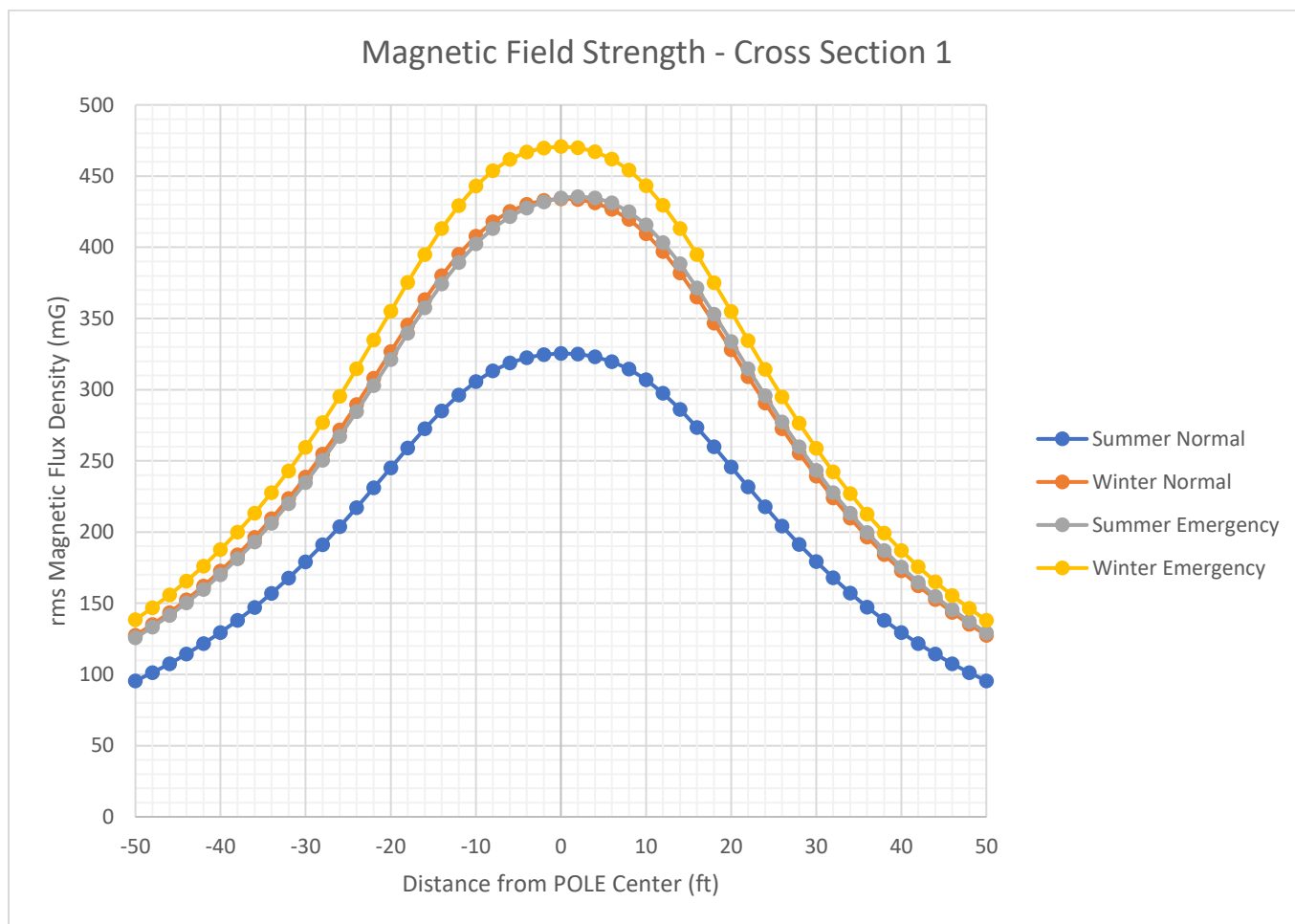


Figure 8 – Magnetic field strengths at Cross-Section 1 for various electrical load cases.

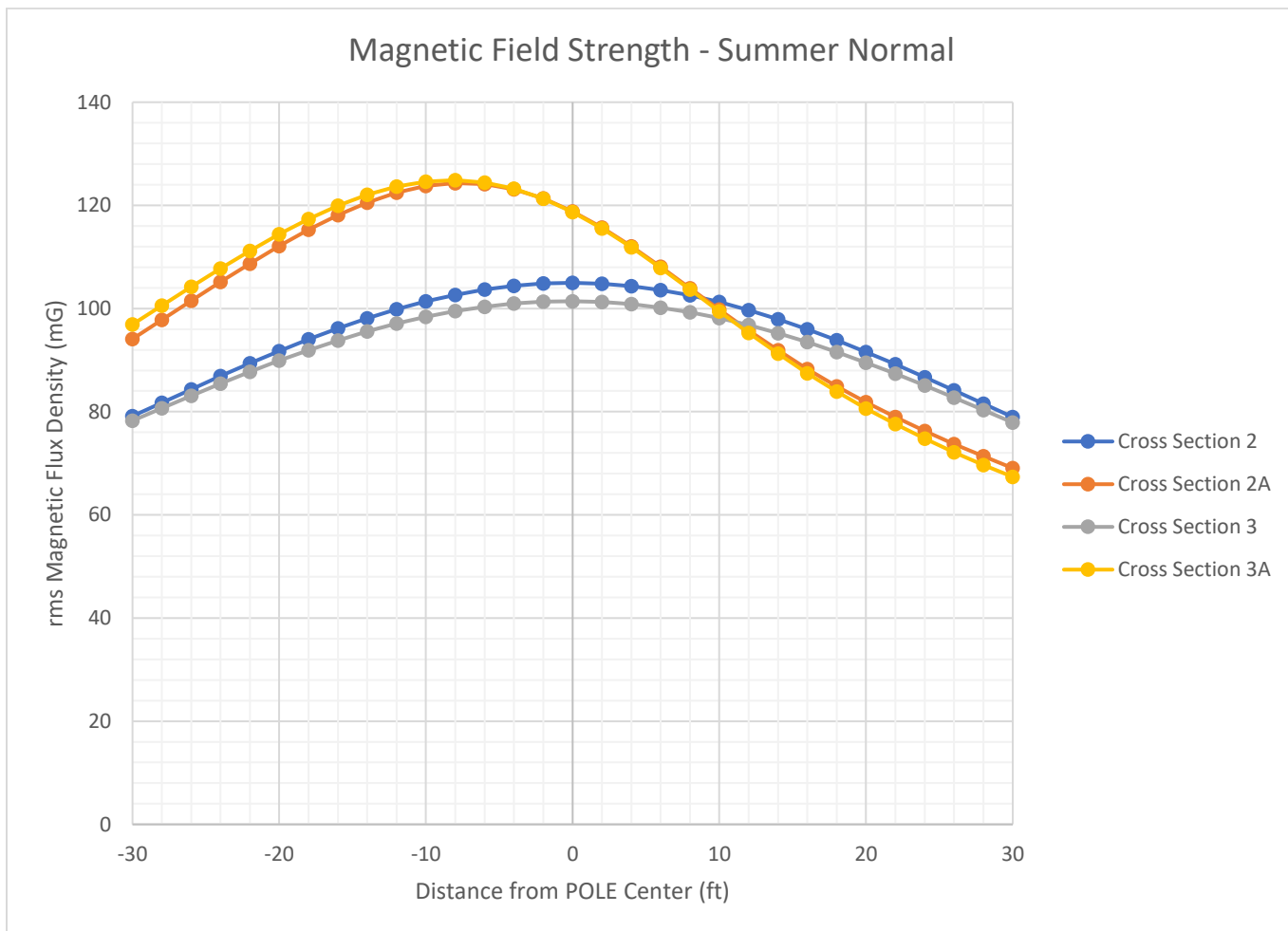


Figure 9 – Magnetic field strengths at Cross-Sections 2, 2A, 3, & 3A for Summer Normal Electrical Load.

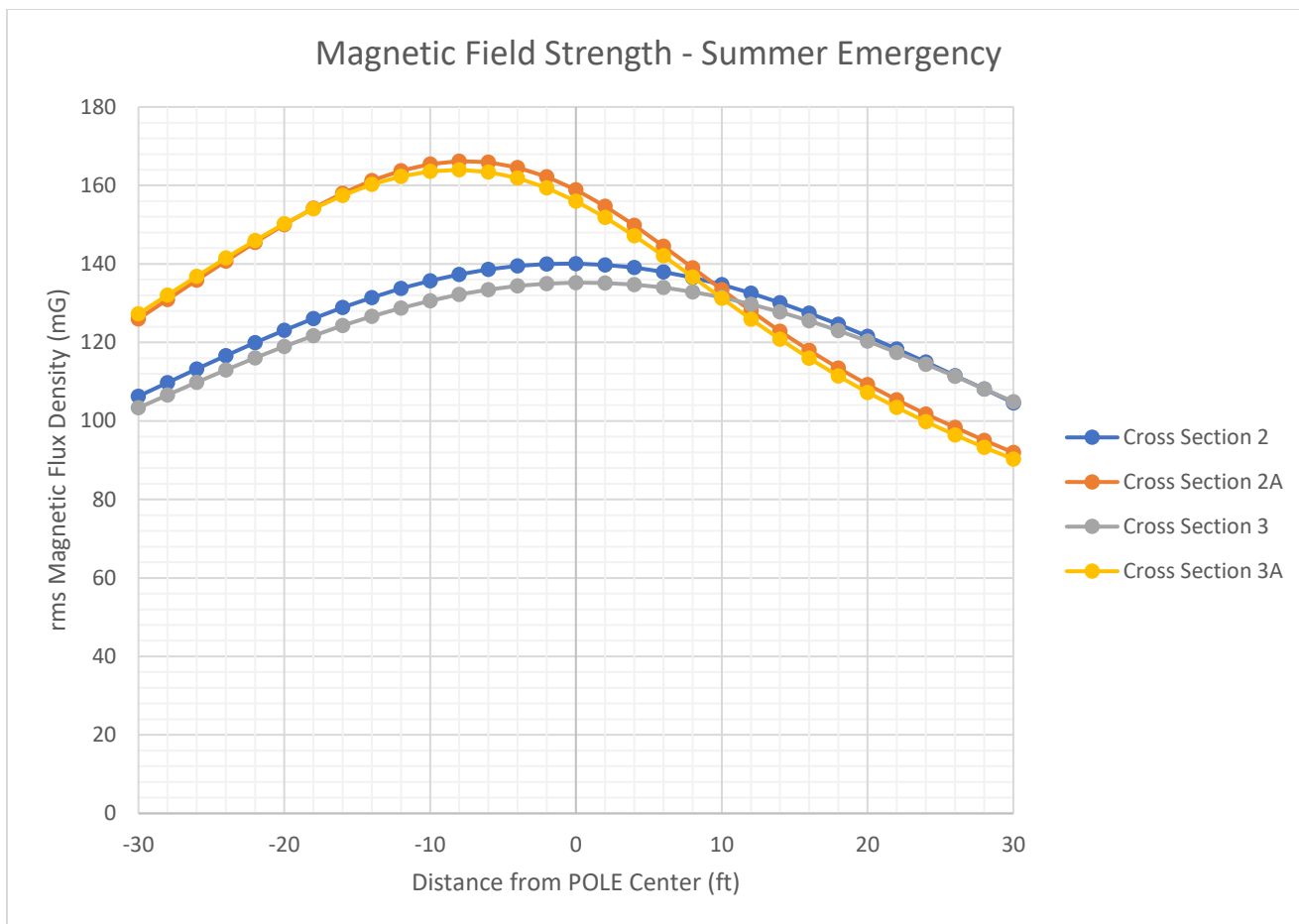


Figure 10 – Magnetic field strengths at Cross-Sections 2, 2A, 3, & 3A for Summer Emergency Electrical Load.

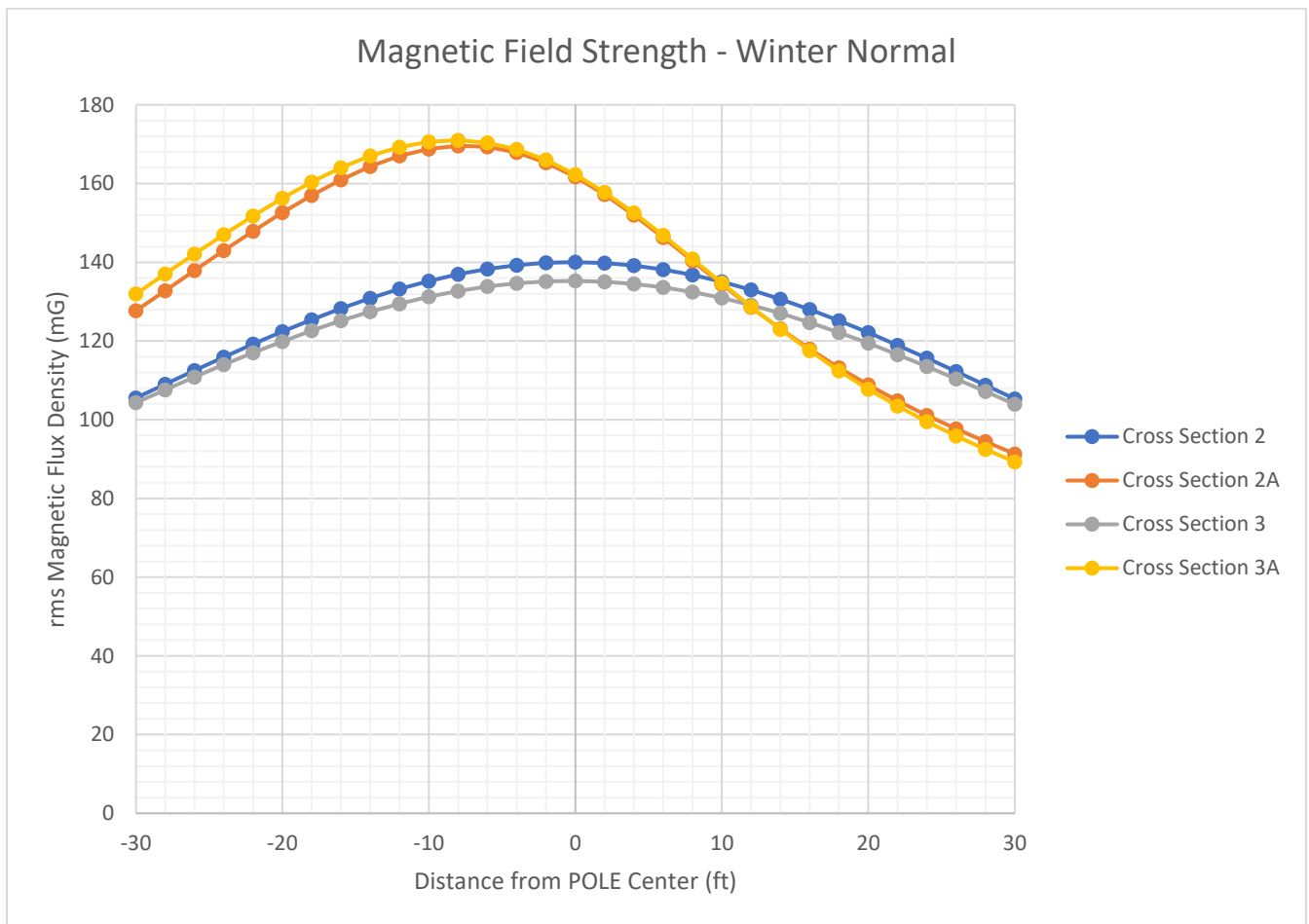


Figure 11 – Magnetic field strengths at Cross-Sections 2, 2A, 3, & 3A for Winter Normal Electrical Load.

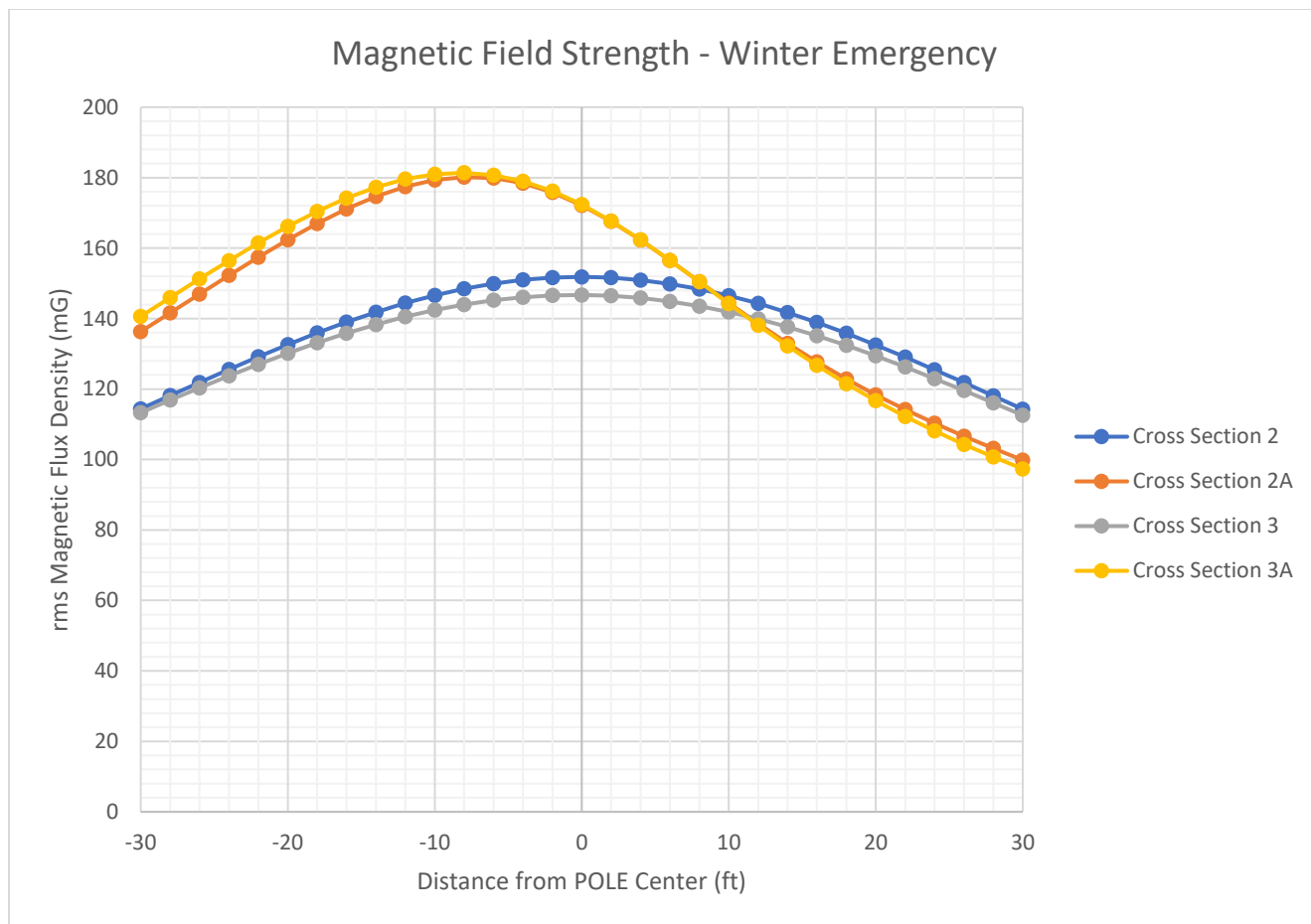
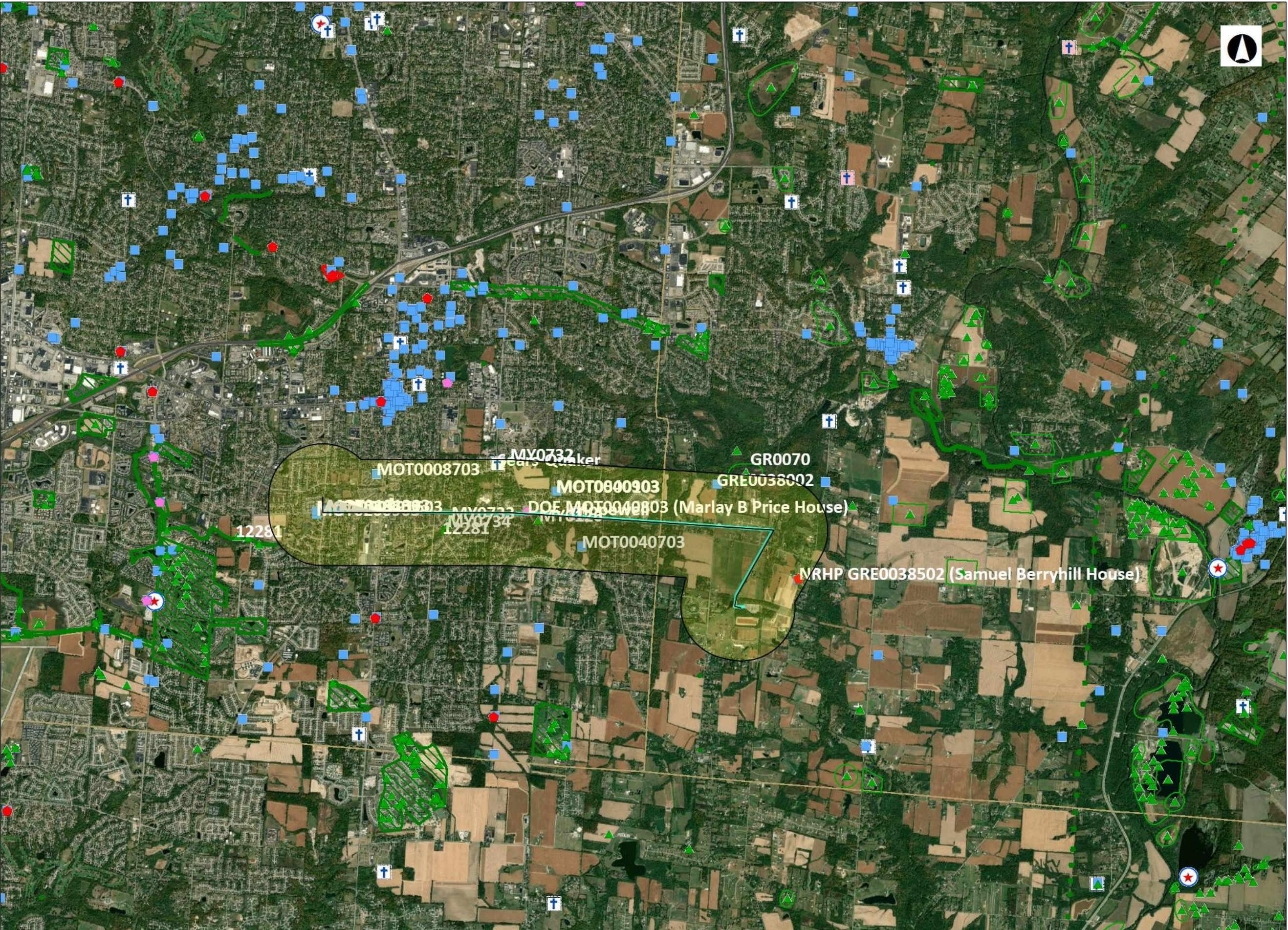


Figure 12 – Magnetic field strengths at Cross-Sections 2, 2A, 3, & 3A for Winter Emergency Electrical Load.

Attachment C – Cultural Resources Review Figures



Legend

- NR Listings
 - Listed
 - National Historic Landmark
 - Delisted
- Determinations of Eligibility
 - DOE
 - Demolished
- Archaeological Sites
- Historic Structures
- Historic Bridges
- Historic Tax Credit Projects
- Local Designations
- OGS Cemeteries
 - Confident
 - Not Confident
- Historic Markers
- Dams
- UTM Zone Split
- NR Boundaries
- Local Districts
- OAI Site Boundaries
- Phase1
- Phase2
- Phase3
- Historic Previously Surveyed
- Highways
- Counties
- NPS Parks

0 0.91 1.8 Miles

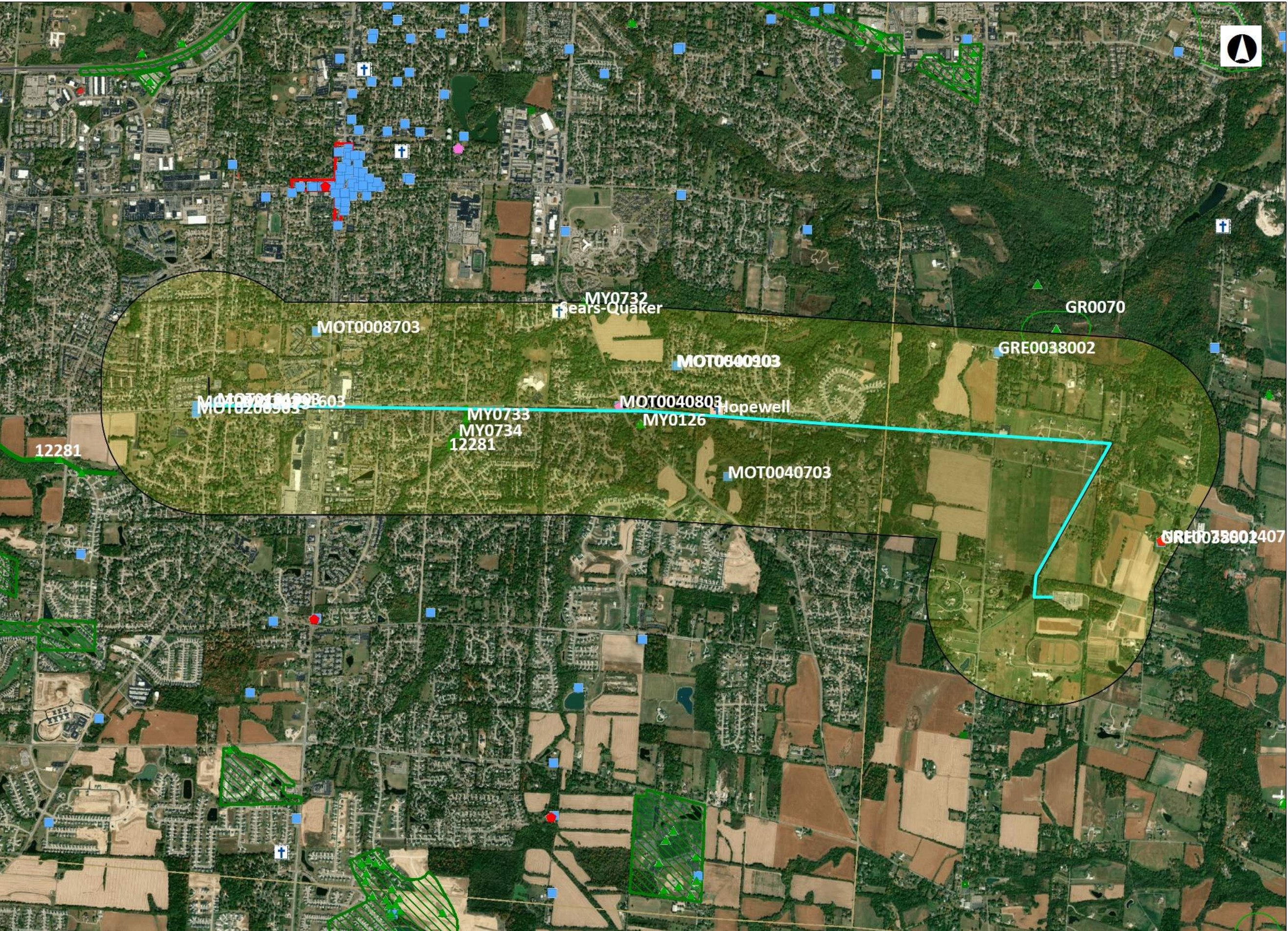
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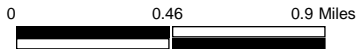
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Legend

- NR Listings
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State Historic
Preservation Office

Legend

NR Listings

- Listed
- National Historic Landmark
- Delisted

Determinations of Eligibility

- DOE
- Demolished
- Archaeological Sites
- Historic Structures
- Historic Bridges
- Historic Tax Credit Projects
- Local Designations

OGS Cemeteries

- Confident
- Not Confident

Historic Markers

- Dams
- UTM Zone Split

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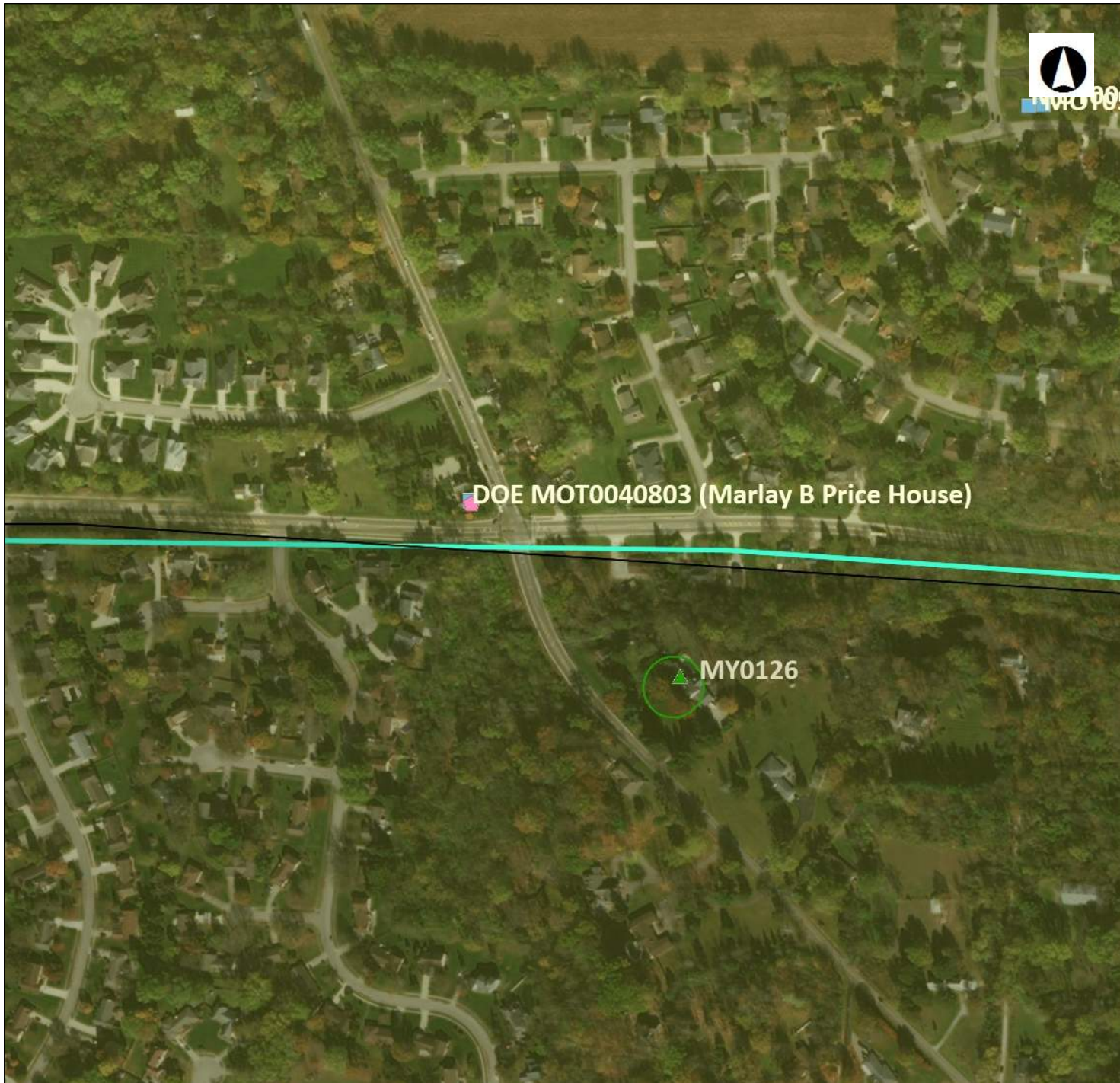
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State Historic
Preservation Office

Legend

NR Listings

- Listed
- National Historic Landmark
- Delisted

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- Historic Tax Credit Projects
- Local Designations

OGS Cemeteries

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- Not Confident

Historic Markers

- Dams
- UTM Zone Split

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Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere



Attachment D – Rare, Threatened, and Endangered Species
Correspondence

Tyler Rankin

From: Ohio, FW3 <ohio@fws.gov>
Sent: Monday, November 16, 2020 1:49 PM
To: Bradley Rolfes
Cc: Tyler Rankin
Subject: Dayton Power and Light Sugarcreek #2, Greene County Ohio

Follow Up Flag: Follow up
Flag Status: Flagged

EXERCISE CAUTION: This is an External Email Message!

Think before clicking on links, opening attachments, or responding



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



TAILS# 03E15000-2021-TA-0267

Dear Mr. Rolfes,

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

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


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

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

state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.state.oh.us.

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice Ashfield". The signature is fluid and cursive, with a large initial "P" and a long, sweeping underline.

Patrice Ashfield
Field Office Supervisor



Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate

John Kessler, Chief

2045 Morse Road – Bldg. E-2

Columbus, OH 43229

Phone: (614) 265-6621

Fax: (614) 267-4764

January 11, 2021

Bradley Rolfes
GAI Consultants
6000 Town Center Blvd., Suite 300
Canonsburg, PA 15317

Re: 20-1038; DP&L Sugarcreek No. 2 Project

Project: The proposed project involves the rebuild and installation of new and existing 69 kV line spanning approximately 4.85-miles, from the DP&L Sugarcreek Substation

Location: The proposed project is located in Sugarcreek Township, Greene County, Ohio.

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

Natural Heritage Database: The Natural Heritage Database has the following records at or within a one-mile radius of the project area:

Sugarcreek MetroPark – Five Rivers MetroParks

The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity.

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

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

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

The entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH ≥ 20 if possible. If trees are present within the project area, and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting. Mist net and acoustic surveys should be conducted in accordance with the most recent version of the “OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING”. If state listed bats are documented, DOW recommends cutting only occur from October 1 through March 31, however, limited summer tree cutting may be acceptable after consultation with DOW (contact Sarah Stankavich, sarah.stankavich@dnr.state.oh.us).

The DOW also recommends that a desktop habitat assessment, followed by a field assessment if needed, is conducted to determine if there are potential hibernaculum(a) present within the project area. Information about how to conduct habitat assessments can be found in the current USFWS “Range-wide Indiana Bat Survey Guidelines.” If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the project area, please send this information to Sarah Stankavich, sarah.stankavich@dnr.state.oh.us for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species:

Federally Endangered

clubshell (*Pleurobema clava*)

rayed bean (*Villosa fabalis*)

snuffbox (*Epioblasma triquetra*)

State Endangered

pocketbook (*Lampsilis ovate*)

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2020), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts

will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2020) can be found at:

<http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf>

The project is within the range of the channel darter (*Percina copelandi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.

The project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

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

The project is within the range of the black-crowned night-heron (*Nycticorax nycticorax*), a state-threatened bird. Night-herons are so named because they are nocturnal, conducting most of their foraging in the evening hours or at night, and roost in trees near wetlands and waterbodies during the day. Night herons are migratory and are typically found in Ohio from April 1 through December 1 but can be found in more urbanized areas with reliable food sources year-round. Black-crowned night-herons primarily forage in wetlands and other shallow aquatic habitats, and roost in trees nearby. These night-herons nest in small trees, saplings, shrubs, or sometimes on the ground, near bodies of water and wetlands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the loggerhead shrike (*Lanius ludovicianus*), a state endangered bird. The loggerhead shrike nests in hedgerows, thickets and fencerows. They hunt over hayfields, pastures, and other grasslands. If thickets or other types of dense shrubbery habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, the project is not likely to impact this species.

Attachment E - Wetland Delineation and Stream Assessment Report (WDSIR)

Wetland Delineation and Stream Identification Report

AES Ohio
Sugarcreek to Normandy Circuit Addition Project
Greene and Montgomery Counties, Ohio

GAI Project Number: R200144.02

AES Ohio Project Number: 2001361192

May 11, 2021



Wetland Delineation and Stream Identification Report

AES Ohio
Sugarcreek to Normandy Circuit Addition Project
Greene and Montgomery Counties, Ohio

GAI Project Number: R200144.02
AES Ohio Project Numbers: 2001361192

May 11, 2021

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1.0 Introduction

AES Ohio is proposing to install a new 69kV line from the existing Sugarcreek Substation to the existing Normandy Substation. Additionally, AES Ohio will be installing new structures and removing existing structures on three 138kV circuits to allow for a 69kV substation expansion project. The Project is located in Greene and Montgomery Counties, Ohio. **(Figure 1, Project Vicinity).**

GAI Consultants, Inc. (GAI), on behalf of AES Ohio, conducted wetland delineation and stream investigation surveys at the Project study area on June 17, 2020. GAI identified approximate boundaries of wetlands and waterbodies located within the vicinity of a 63.21-acre study area that consisted of a 100-foot wide corridor centered on the new and existing transmission line right-of-way (ROW), and a 50-foot wide corridor centered on proposed access roads. This report describes the methods and results of the environmental field survey within the Project study areas.

2.0 Methods

The study area was investigated for the presence of wetlands and streams on June 17, 2020. Wetland delineations were conducted in accordance with the 1987 United States Army Corps of Engineers (USACE) *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest* (Version 2.0) (USACE, 2012). Wetlands were classified using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979). Classification of the indicator status of vegetation is based on *The National Wetland Plant List: 2016 Update of Wetland Ratings* (Lichvar, et al, 2016).

The growing season in the Project area is generally between April and November in Greene and Montgomery Counties, Ohio (United States Department of Agriculture, Natural Resource Conservation [USDA-NRCS], 2014). Field observations were supplemented with an intensive review of United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping, USDA-NRCS soils mapping, historical aerial photography (Google Earth), and local landscape topography/morphology to identify the locations of potential wetlands and waterbodies present within the study area. This resource review was supplemented by the completion of the June 17, 2020 wetland delineation field investigations. Professional judgment was used to determine whether hydrophytic vegetation and hydric soils existed within the potential wetland areas if onsite data was ambiguous.

Each wetland and waterbody feature was given a unique map designation and each boundary flag location was recorded using a Trimble R1 model global positioning system mapping grade unit with the capability of sub-meter accuracy. Judgmental upland and wetland soil test pits were taken within the study area at the discretion of the delineator to confirm the presence or absence of wetlands in areas exhibiting surficial indications of wetland conditions. Wetland boundaries, stream banks and/or centerlines were mapped in relation to existing Project data supplied by AES Ohio and various environmental and cadastral background data in Geographical Information Systems (GIS).

3.0 Regulatory Discussion

3.1 Waters of the United States

"Waters of the U.S." are within the jurisdiction of the USACE under the Clean Water Act (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 waterbodies 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).

The USACE will assert jurisdiction over traditionally navigable waters (TNWs), adjacent wetlands, and non-navigable tributaries of TNWs 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.

3.2 Waters of the State

“Waters of the State” are within the jurisdiction of the Ohio Environmental Protection Agency (OEPA) Division of Surface Water. They are generally defined as streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and other bodies or accumulation of water, surface and underground, natural or artificial, regardless of the depth of the strata in which underground water is located, that are situated wholly or partly within or border upon this state or are within its jurisdiction. In addition to those “Waters of the State” that would also be considered “Waters of the U.S.,” the OEPA also regulates and issues permits for isolated wetland impacts. The State relies on the USACE decision regarding wetland determinations and delineations including whether or not a wetland is isolated or non-isolated.

The 401 Water Quality Certification for Nationwide Permit Eligibility Web Map (2017 Reissuance) was used to determine stream eligibility coverage under the 401 Water Quality Certification (WQC) for the 2017 Nationwide Permits (NWP). Furthermore, the map was used to identify any ineligible areas that may require a CWA Section 401 individual permit from the OEPA should stream impacts occur within the Project area (OEPA, 2017) (**Figure 3, Stream Eligibility**).

4.0 Results

Project study area topography primarily consists of gently slope grassland and some forested stream valleys within the Indiana and Ohio Till Plain, Western Part (MLRA; USDA-NRCS, 2006). Land use within and adjacent to the study area consists routinely maintained transmission line ROW, pasture Road ROW, riparian corridor, woodlots, and suburban residential and urban land uses.

The Project study area crosses the Sugar Creek watershed (Hydrologic Unit Code [HUC-12] 050902020501) and the Holes Creek (HUC-12 050800020104) (**Figure 1, Project Vicinity**).

The USFWS's NWI was reviewed for potential wetland locations. However, the NWI maps were prepared from high altitude photography and in most cases, were not field verified. As a result, wetlands are sometimes erroneously identified, missed, or misidentified within this data set. The presence of an NWI-mapped wetland does not necessarily constitute the presence of a wetland meeting USACE criteria. The NWI map of the area (**Figure 2, Resource Location, Sheet Index**) identified four (4) NWI features crossed by the study area. The NWI feature crossed by the study area is classified as Palustrine Unconsolidated Bottom Intermittently Exposed Diked/Impounded (PUBGh), Palustrine Aquatic Bottom Intermittently Exposed Diked/Impounded (PABGh), Riverine Intermittent Streambed Seasonally Flooded (R4SBC), Riverine Unknown Perennial Unconsolidated Bottom (R5UBH).

Based on GAI's June 2020 wetland delineation field investigations, one (1) wetland complex, containing mosaics of palustrine emergent (PEM), palustrine forested (PFO), and palustrine scrub shrub (PSS) and one PEM wetland, totaling 2.66 acres, was identified within the study area. Given the apparent connection of the wetlands to the jurisdictional waterbodies identified in and near the study area, these wetlands would likely be considered jurisdictional by the USACE. Additionally, two waterbodies (ponds) totaling 0.191 acres, were identified within the Study Area. The location of the identified wetlands and waterbodies can be found in **Figure 2, Resource Location**.

As regulated by Ohio Administrative Code (OAC) rules 3745-1-50 through 3745-1-54, wetlands were also evaluated using the Ohio Rapid Assessment Method (ORAM) to determine the appropriate wetland category. Any wetland score that fell within a gray zone between categories was scored one of two ways. Either the wetland was assigned to the higher of the two categories or it was assessed using a non-rapid method to determine its quality (Mack, 2001). The category assigned to a particular wetland determines the requirement, if any, for additional levels of protection administered by the OEPA.

To evaluate potential streams within the study area, GAI reviewed existing United States Geological Survey (USGS) topographic maps, aerial photography, National Hydrography Dataset (NHD) stream data, and site contour data. Five (5) likely jurisdictional Perennial streams and one (1) likely jurisdictional ephemeral stream, totaling approximately 2,001 feet, were identified within the study area. Locations of the identified streams can be found in **Figure 2, Resource Location**.

As regulated by OAC Chapter 3745-1-21 and Section 401 WQC, streams with proposed permanent and/or temporary impacts were also assessed according to OEPA guidance using either the Headwater Habitat Evaluation Index (HHEI) for watersheds less than one square mile in size, or the Qualitative Habitat Evaluation Index (QHEI) for watersheds between one and 20 square miles in size.

All stream segments are located within an Eligible area for coverage under the 401 WQC for NWPs (**Figure 3, Stream Eligibility**). Additionally, no streams were identified as USACE Section 10 navigable.

In addition to the jurisdictional stream identified, all roadside ditches and other surface drainages within the study area were also evaluated for consideration as jurisdictional Waters of the U.S. with respect to the Clean Water Act Rule [40 CFR 230.3(3)(iii)]. Jurisdictional ditches must meet the definition of tributary, have an OHWM, and flow directly or indirectly through another water to a TNW. Likely jurisdictional ditches include: ditches with perennial flow; ditches with intermittent flow that drain wetlands; or ditches, regardless of flow, that are excavated in or relocate a tributary. Jurisdictional wetlands may be present within or connected to another jurisdictional Waters of the U.S. in regard to significant nexus analysis through, non-jurisdictional ditches or surface drainages. Multiple roadside ditches and swales were observed throughout the study area, however, none of the roadside ditches or other drainages would be considered jurisdictional or likely jurisdictional within the study area. These features were excavated in upland soils to convey upland drainage and had no defined bed and bank or flow regime to constitute a Waters of the U.S. designation. Locations of these non-jurisdictional features can be found in **Figure 2, Resource Location**.

The identified wetlands/waterbodies and streams are summarized in **Tables 1 and 2**, respectively. Color photographs of each feature accompany these tables. Wetland data forms and upland data forms corresponding with the identified wetlands are provided in **Appendices A and B**, respectively. OEPA ORAM forms can be found in **Appendix C**. Soil map units within the study area are provided in **Appendix D** and **Figure 2, Resource Location**.

5.0 Conclusions

Wetland delineations and stream investigations of the AES Ohio Sugarcreek to Normandy Circuit Addition Project were conducted on June 17, 2020 within a 63.21-acre study area that includes areas within the vicinity of the existing transmission line ROW, proposed new ROW, and access roads. Two (2) likely USACE-jurisdictional wetlands and six (6) USACE-jurisdictional streams were identified within the study area. Additionally, these features would also be under the jurisdiction of the OEPA. As such, these features would be considered "Waters of the U.S." and Waters of the State.

All statements in this document pertaining to the jurisdictional status of wetlands and streams and wetlands with regard to USACE and state regulations represent the opinion of GAI and are based on present USACE guidance. The jurisdictional status of these features may be confirmed a USACE Jurisdictional Determination and/or by state agencies.

6.0 References

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TABLE 1
Wetlands Identified
Within the Project Study Area

Table 1.
Wetlands and Waterbodies Identified Within the Project Study Area

Feature Designation ¹	Latitude ²	Longitude ²	Cowardin Classification ³	NWI Wetland Classification ⁴	Open Ended ⁵	Size of wetland within Study Area(acres) ⁵	Within a FEMA Designated Floodplain ⁶	"Waters of the U.S." ⁷	ORAM Score/ Category
Wetland A	39.601773	-84.096354	PEM	N/A	No	1.173	No	Yes	43/ Modified 2
Wetland A	39.601443	-84.096996	PFO	N/A	No	0.316	No	Yes	43/ Modified 2
Wetland A	39.601374	-84.097776	PSS	N/A	No	0.424	No	Yes	43/ Modified 2
Wetland B	39.604537	-84.095820	PEM	R5UBH	Yes	0.747	No	Yes	34.5/ Category 1
Open Water 001	39.603908	-84.096278	PUB	PUBGh	No	0.191	No	Yes	n/a
Open Water 002	39.615400	-84.169302	PUB	PUBGh	No	0.000	No	Yes	n/a
Total Wetland Acreage within Study Area						2.851			

Notes:

- ¹ GAI map designation.
- ² Decimal degrees; Coordinates provided in NAD 83.
- ³ Palustrine system wetlands were classified as Emergent (PEM), Forested (PFO) or Scrub Shrub (PSS).
- ⁴ National Wetlands Inventory (NWI) wetland as mapped by the United States Fish and Wildlife Service.
- ⁵ Extent of wetland within study area. Wetland may extend beyond these limits if noted as open ended. An acreage of zero indicates a wetland was delineated but existed entirely outside the study area.
- ⁶ Wetlands residing within the limits of a Federal Emergency Management Agency (FEMA) designated 100-year floodplain or floodway.
- ⁷ Waters of the United States (U.S.) include the following: All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: which are or could be used by interstate or foreign travelers for recreational or other purposes, from which fish or shellfish are or could be taken and sold in interstate or foreign commerce, or which are used or could be used for industrial purpose by industries in interstate commerce (33 CFR 328 and Supplementary Information).

WETLAND PHOTOGRAPHS

Wetland Photographs



Photograph 1. Wetland-A. PEM
Facing Southwest. (June 17, 2020)



Photograph 2. Wetland-A. PEM
Facing Northeast. (June 17, 2020)



Photograph 3. Wetland-A. PFO
Facing South. (June 17, 2020)



Photograph 4. Wetland-A. PFO
Facing North. (June 17, 2020)



Photograph 5. Wetland-A. PSS
Facing South. (June 17, 2020)



Photograph 6. Wetland-A. PSS
Facing North. (June 17, 2020)



Photograph 7. Wetland-B. PEM
Facing Northeast. (June 17, 2020)



Photograph 8. Wetland-B. PEM
Facing Southeast. (June 17, 2020)



Photograph 9. Open Water 001
Facing North. (June 17, 2020)



Photograph 10. Open Water 002
Facing North. (June 17, 2020)

TABLE 2
Streams Identified
Within the Project Study Area

Table 2.
Streams Identified Within the Project Study Area

Feature Designation ¹	Latitude ²	Longitude ²	Name	Type	OHWM Width (feet)	OHWM Depth (feet)	BFW (feet)	BFD (feet)	TOB Width (feet)	TOB Depth (feet)	Length Within Study Area ³ (feet)	Ohio or Federal Special Listing ^{4,5,6,7}	Open Ended	OEPA Stream Eligibility
Stream 001	39.601531	-84.097687	UNT to Sugar Creek	Perennial	4	1	5	2	6	3	548	N/A	Yes	Eligible
Stream 002	39.605971	-84.094854	UNT to Sugar Creek	Perennial	5	1	6	2	8	3	1118	N/A	Yes	Eligible
Stream 003	39.611292	-84.109435	UNT to Sugar Creek	Perennial	21	0.75	25	1.5	30	4	52	N/A	Yes	Eligible
Stream 004	39.611808	-84.114289	UNT to Sugar Creek	Perennial	15	1	20	2	25	3	101	N/A	Yes	Eligible
Stream 005	39.613710	-84.144575	Sugar Creek	Perennial	22	1.5	25	3	30	6	63	CWH	Yes	Eligible
Stream 006	39.610966	-84.108930	UNT to Sugar Creek	Ephemeral	1.5	0.5	2	0.75	4	1	119	N/A	Yes	Eligible
Total Stream Length (feet) within Study Area											2,001			

Notes:

¹GAI map designation.
²Decimal degrees; Coordinates provided in NAD 83.
³Extent of stream or open water within study area. Stream or open water may extend beyond these limits if noted as open ended. A length of 0 indicates a stream was delineated but exists entirely outside the study area.
⁴USACE Navigable Streams in Ohio Listing (Section 10 Waters) Huntington District.
⁵OEPA Aquatic Life Use Designation of Exceptional Warmwater Habitat (EWH), Cold Water Habitat (CWH), Warmwater Habitat (WWH), Seasonal Salmonid Habitat (SSH), Modified Warmwater Habitat (MWH), or any equivalent per OAC 3745-1-21.
⁶OEPA Antidegradation Category of Superior High Quality Water, Outstanding National Resource Water, or Outstanding State Water.
⁷ODNR Listing of State Wild and Scenic Rivers.

STREAM PHOTOGRAPHS

Stream Photographs



Photograph 1. Stream 001. Downstream
Facing North. (June 17, 2020)



Photograph 2. Stream 001. Upstream
Facing Southwest. (June 17, 2020)



Photograph 3. Stream 002. Downstream
Facing North. (June 17, 2020)



Photograph 4. Stream 002. Upstream
Facing South. (June 17, 2020)



Photograph 5. Stream 003. Downstream
Facing South. (June 17, 2020)



Photograph 6. Stream 003. Upstream
Facing North. (June 17, 2020)



Photograph 7. Stream 004. Downstream
Facing South. (June 17, 2020)



Photograph 8. Stream 004. Upstream
Facing Southeast. (June 17, 2020)



Photograph 9. Stream 005. Downstream
Facing North. (June 17, 2020)



Photograph 10. Stream 005. Upstream
Facing South. (June 17, 2020)

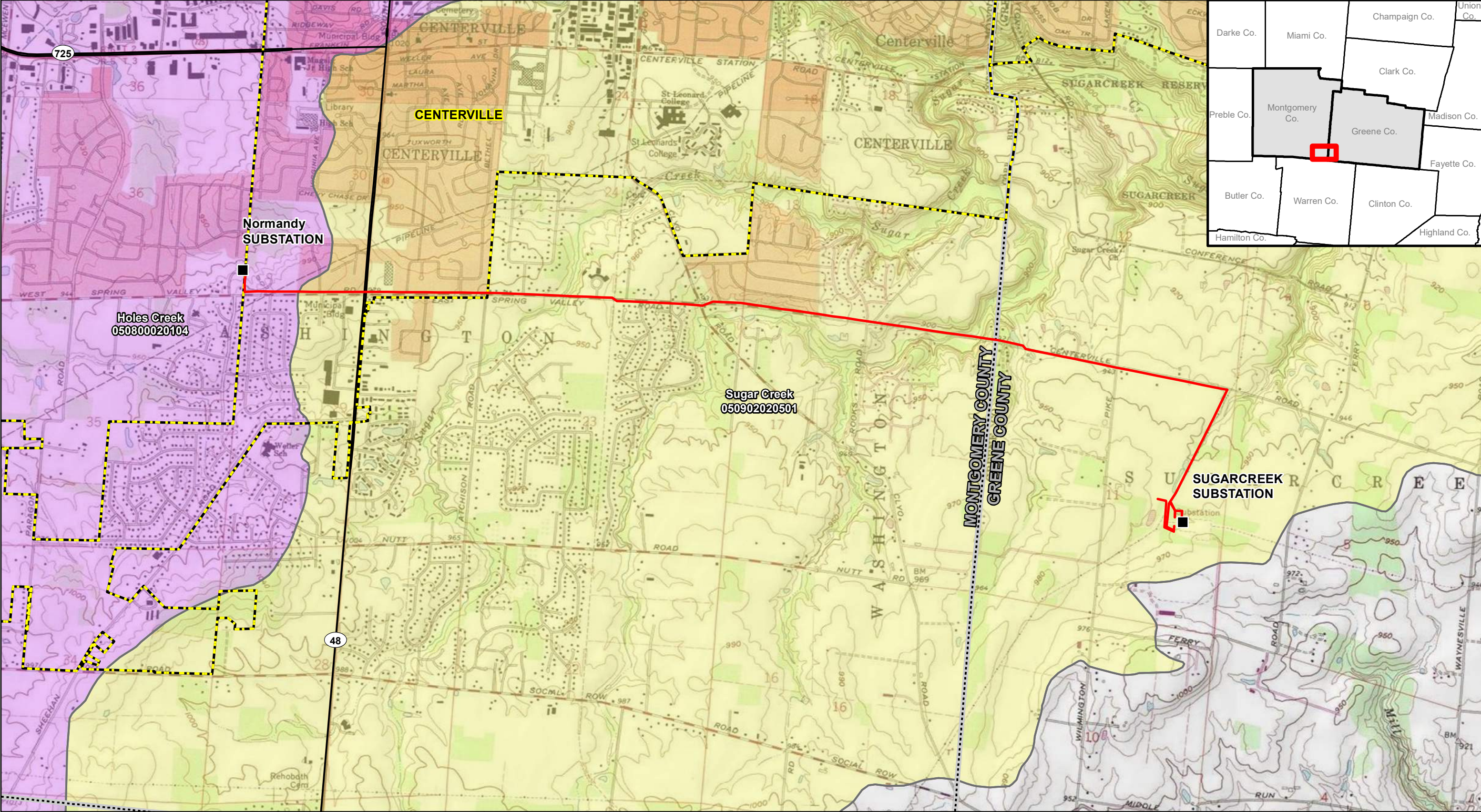


Photograph 9. Stream 006. Downstream
Facing West. (June 17, 2020)



Photograph 10. Stream 006. Upstream
Facing East. (June 17, 2020)

FIGURES



PROJECT LOCATION

GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
TOPOGRAPHIC MAP:
- Esri's USA Topo Map, Accessed: 5/25/2021.
INCORPORATED AREA:
- Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY:
- Ohio Department of Transportation's Counties, 9/11/2018.
HIGHWAY:
- Esri's U.S. Major Roads, 5/10/2018.
12-DIGIT WATERSHED:
- United States Geological Survey's 12-Digit Hydrologic Units, 6/16/2020.
PROJECT DETAILS:
- AES Ohio.

State Highway	Existing Facility	Holes Creek
Incorporated Area	Route Centerline	Sugar Creek
County Boundary		

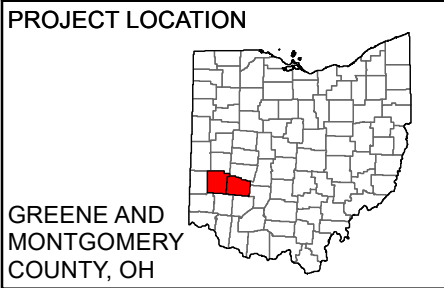
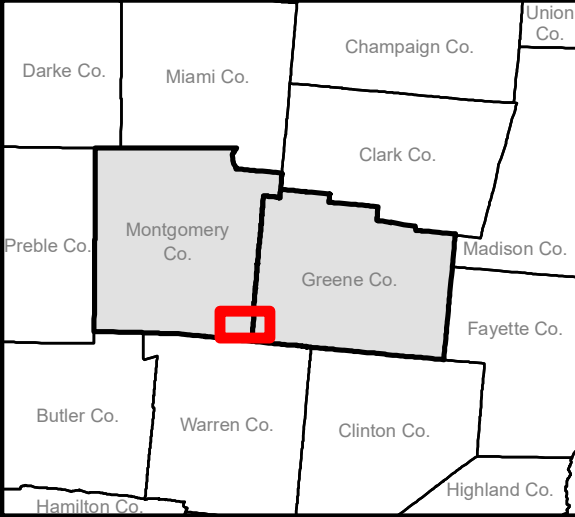
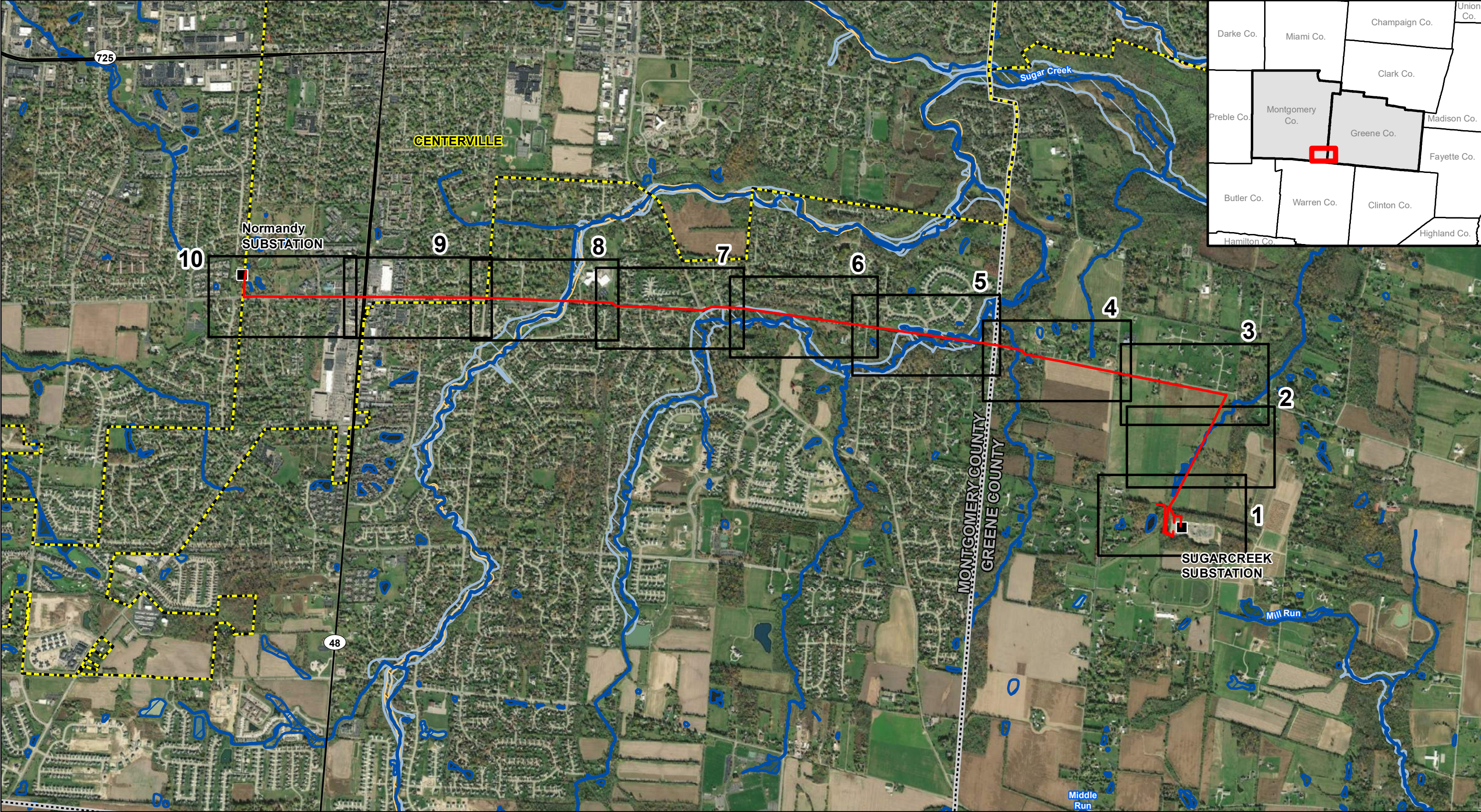
FIGURE 1
PROJECT VICINITY

Wetland Delineation and Stream Identification Report

Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
CHECKED: TDB

DATE: 5/25/2021
APPROVED: MRW



REFERENCE:
AERIAL PHOTOGRAPH:
- Esri's World Imagery 2020, Accessed: 5/25/2021.
INCORPORATED AREA:
- Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY:
- Ohio Department of Transportation's Counties, 9/11/2018.
HIGHWAY:
- Esri's U.S. Major Roads, 5/10/2018.
NHD FLOWLINE:
- United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.
NWI WETLAND:
- United States Fish and Wildlife Service's National Wetland Inventory, 10/1/2020.
FLOODPLAIN AND FLOODWAY:
- Federal Emergency Management Agency's National Flood Hazard Layer, 2/18/2021.
PROJECT DETAILS:
- AES Ohio.

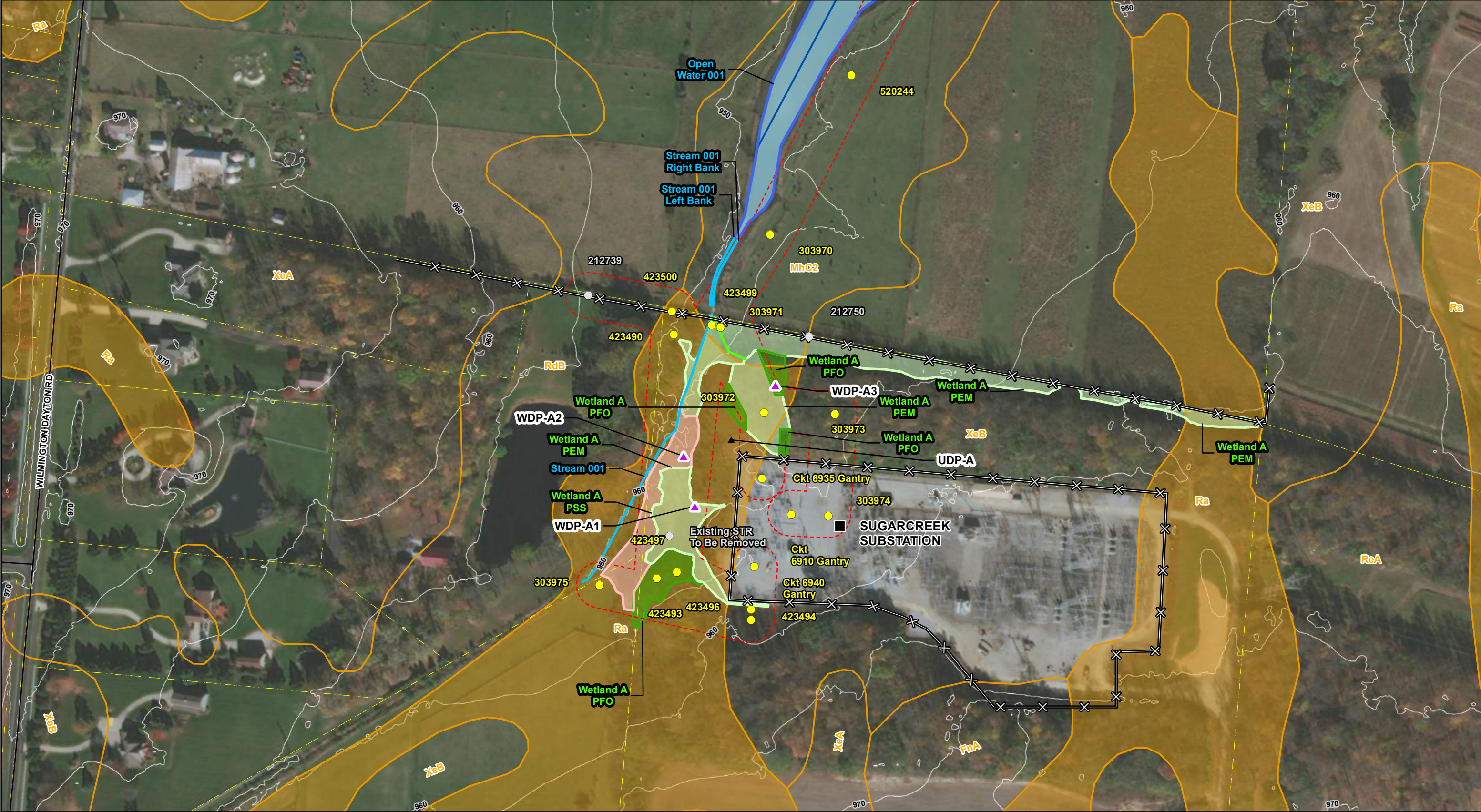


**FIGURE 2
RESOURCE LOCATION
SHEET INDEX**

Wetland Delineation and Stream Identification Report
Sugarcreek-Normandy Circuit Addition Project

**DRAWN BY: MBH
CHECKED: TDB**

**DATE: 5/25/2021
APPROVED: MRW**



SHEET INDEX

MONTGOMERY COUNTY

GREENE COUNTY

WARREN COUNTY

REFERENCE:

AERIAL PHOTOGRAPH: Esri's World Imagery 2020, Accessed: 5/25/2021.

INCORPORATED AREA: Ohio Department of Transportation's Cities, 9/11/2018.

COUNTY BOUNDARY: Ohio Department of Transportation's Counties, 9/11/2018.

HIGHWAY: Esri's U.S. Major Roads, 5/10/2018.

LOCAL ROAD: Ohio Department of Transportation's Roads, 9/11/2018.

NHD FLOWLINE: United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.

FLOODPLAIN AND FLOODWAY: Federal Emergency Management Agency's National Flood Hazard Layer, 2/18/2021.

SOIL TYPE BOUNDARY: United States Department of Agriculture's SSURGO, 6/11/2020.

HYDRIC SOIL TYPE CLASSIFICATION: Soil Type where proportion of the map unit classified as hydric is greater than 90 percent according to SSURGO database 6/11/2020 (hydclpr field).

PARCELS: Downloaded from Greene and Montgomery County GIS, 6/15/2020.

5-FOOT CONTOUR: Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.

PROJECT DETAILS: AES Ohio.

State Highway	Existing Facility	Fence	Delineated Wetland - PEM	NHD Flowline
Local Road	Proposed Structure	Surface Drainage	Delineated Wetland - PSS	100-Year Floodplain
Incorporated Area	Existing Structure	Delineated Stream	Delineated Wetland - PFO	Floodway
County Boundary	Existing Culvert End	Soil Type Boundary	Delineated Open Water	Parcel Boundary
		Hydric Soil Boundary	Study Area	5-Foot Contour

aes Ohio

gai consultants

0 100 200 Feet

1 in = 200 feet

FIGURE 2

RESOURCE LOCATION

SHEET 1 of 10

Wetland Delineation and Stream Identification Report

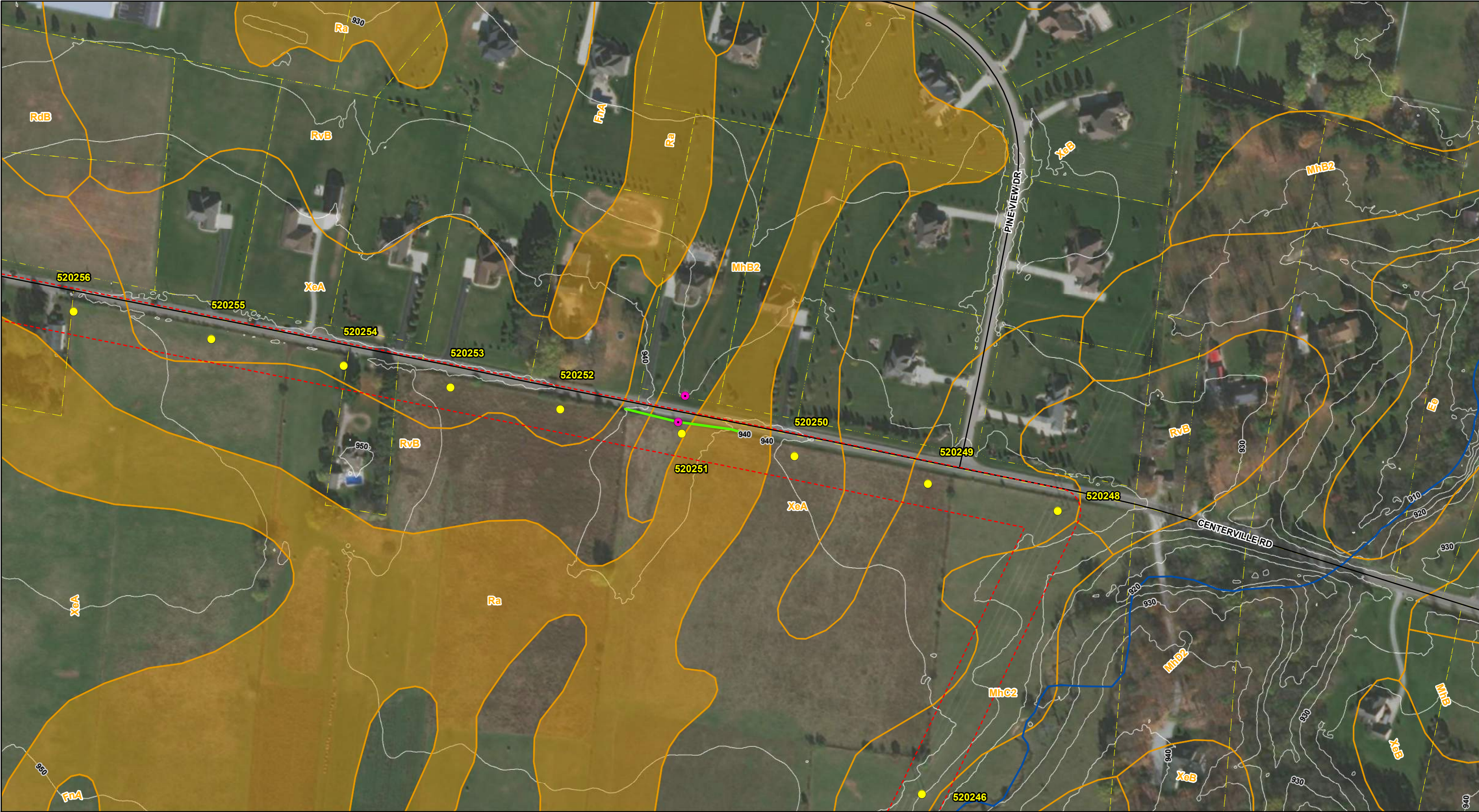
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH

CHECKED: TDB

DATE: 5/25/2021

APPROVED: MRW



SHEET INDEX

MONTGOMERY COUNTY

GREENE COUNTY

WARREN COUNTY

REFERENCE:

AERIAL PHOTOGRAPH:
- Esri's World Imagery 2020, Accessed: 5/25/2021.

INCORPORATED AREA:
- Ohio Department of Transportation's Cities, 9/11/2018.

COUNTY BOUNDARY:
- Ohio Department of Transportation's Counties, 9/11/2018.

HIGHWAY:
- Esri's U.S. Major Roads, 5/10/2018.

LOCAL ROAD:
- Ohio Department of Transportation's Roads, 9/11/2018.

NHD FLOWLINE:
- United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.

FLOODPLAIN AND FLOODWAY:
- Federal Emergency Management Agency's National Flood Hazard Layer, 2/18/2021.

SOIL TYPE BOUNDARY:
- United States Department of Agriculture's SSURGO, 6/11/2020.

HYDRIC SOIL TYPE CLASSIFICATION:
- Soil Type where proportion of the map unit classified as hydric is greater than 90 percent according to SSURGO database 6/11/2020 (hydclips field).

PARCELS:
- Downloaded from Greene and Montgomery County GIS, 6/15/2020.

5-FOOT CONTOUR:
- Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.

PROJECT DETAILS:
- AES Ohio.

State Highway	Existing Facility	Fence	Delineated Wetland - PEM	NHD Flowline
Local Road	Proposed Structure	Surface Drainage	Delineated Wetland - PSS	100-Year Floodplain
Incorporated Area	Existing Structure	Delineated Stream	Delineated Wetland - PFO	Floodway
County Boundary	Existing Culvert End	Soil Type Boundary	Delineated Open Water	Parcel Boundary
		Hydric Soil Boundary	Study Area	5-Foot Contour

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0 100 200 Feet

1 in = 200 feet

North Arrow

FIGURE 2

RESOURCE LOCATION

SHEET 3 of 10

Wetland Delineation and Stream Identification Report

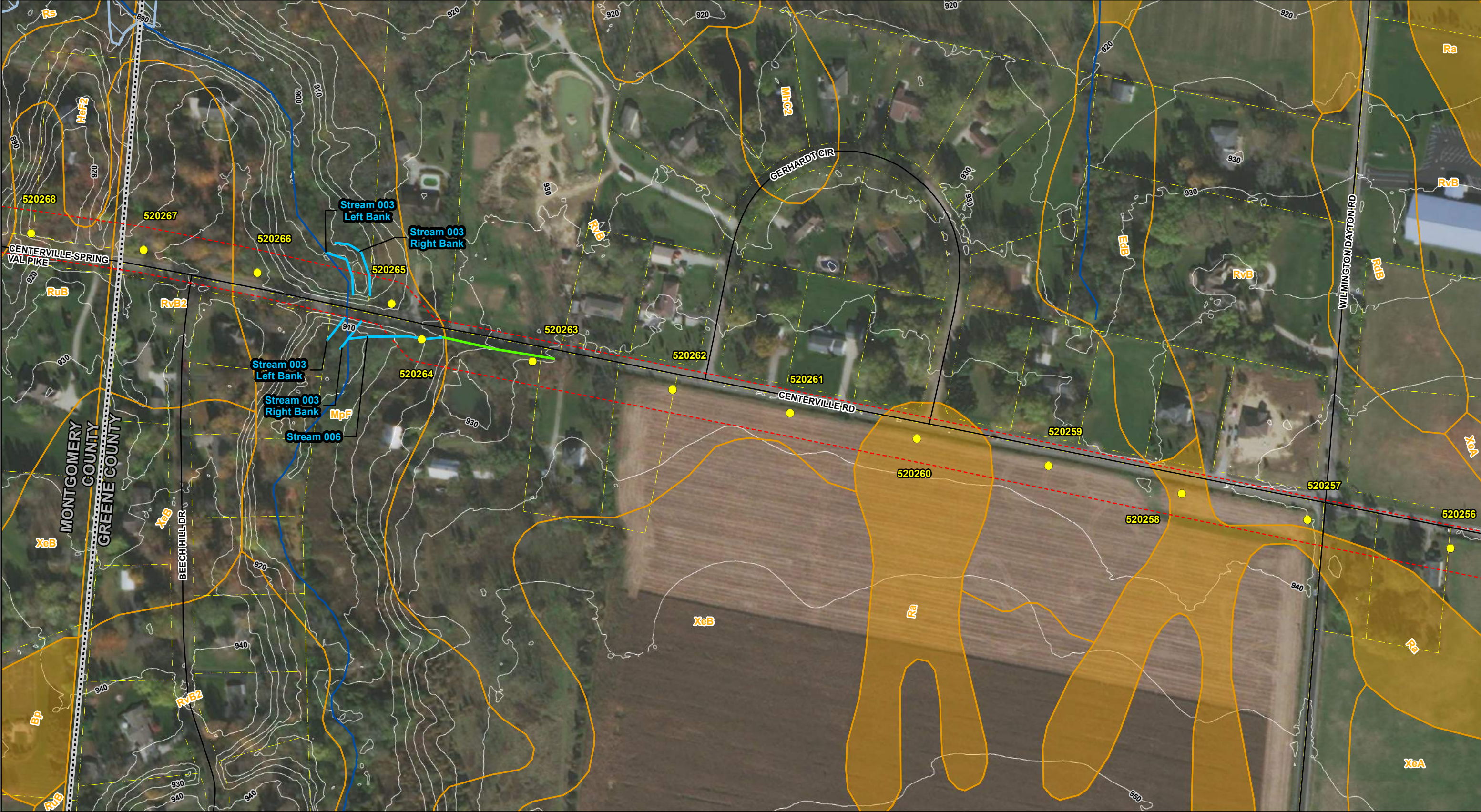
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH

CHECKED: TDB

DATE: 5/25/2021

APPROVED: MRW



SHEET INDEX

MONTGOMERY COUNTY
GREENE COUNTY
WARREN COUNTY

REFERENCE:
AERIAL PHOTOGRAPH: Esri's World Imagery 2020, Accessed: 5/25/2021.
INCORPORATED AREA: Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY: Ohio Department of Transportation's Counties, 9/11/2018.
HIGHWAY: Esri's U.S. Major Roads, 5/10/2018.
LOCAL ROAD: Ohio Department of Transportation's Roads, 9/11/2018.
NHD FLOWLINE: United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.
FLOODPLAIN AND FLOODWAY: Federal Emergency Management Agency's National Flood Hazard Layer, 2/18/2021.
SOIL TYPE BOUNDARY: United States Department of Agriculture's SSURGO, 6/11/2020.
HYDRIC SOIL TYPE CLASSIFICATION: Soil Type where proportion of the map unit classified as hydric is greater than 90 percent according to SSURGO database 6/11/2020 (hydclips field).
PARCELS: Downloaded from Greene and Montgomery County GIS, 6/15/2020.
5-FOOT CONTOUR: Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.
PROJECT DETAILS: AES Ohio.

State Highway	Existing Facility	Fence	Delineated Wetland - PEM	NHD Flowline
Local Road	Proposed Structure	Surface Drainage	Delineated Wetland - PSS	100-Year Floodplain
Incorporated Area	Existing Structure	Delineated Stream	Delineated Wetland - PFO	Floodway
County Boundary	Existing Culvert End	Soil Type Boundary	Delineated Open Water	Parcel Boundary
		Hydric Soil Boundary	Study Area	5-Foot Contour

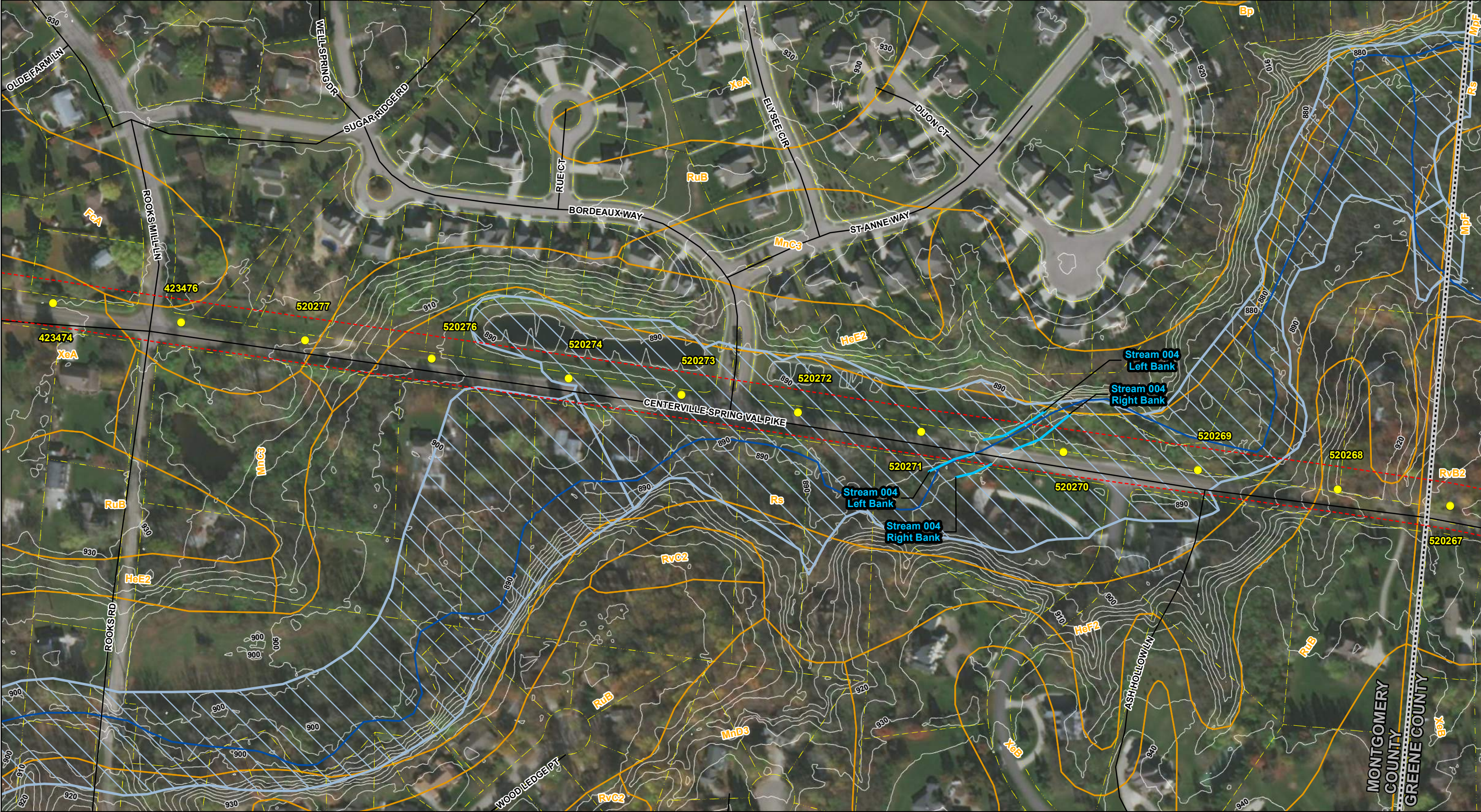
**FIGURE 2
RESOURCE LOCATION**

SHEET 4 of 10

Wetland Delineation and Stream Identification Report
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
CHECKED: TDB

DATE: 5/25/2021
APPROVED: MRW



SHEET INDEX

REFERENCE:
AERIAL PHOTOGRAPH: Esri's World Imagery 2020, Accessed: 5/25/2021.
INCORPORATED AREA: Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY: Ohio Department of Transportation's Counties, 9/11/2018.
HIGHWAY: Esri's U.S. Major Roads, 5/10/2018.
LOCAL ROAD: Ohio Department of Transportation's Roads, 9/11/2018.
NHD FLOWLINE: United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.
FLOODPLAIN AND FLOODWAY: Federal Emergency Management Agency's National Flood Hazard Layer, 2/18/2021.
SOIL TYPE BOUNDARY: United States Department of Agriculture's SSURGO, 6/11/2020.
HYDRIC SOIL TYPE CLASSIFICATION: Soil Type where proportion of the map unit classified as hydric is greater than 90 percent according to SSURGO database 6/11/2020 (hydripr field).
PARCELS: Downloaded from Greene and Montgomery County GIS, 6/15/2020.
5-FOOT CONTOUR: Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.
PROJECT DETAILS: AES Ohio.

State Highway	Existing Facility	Fence	Delineated Wetland - PEM	NHD Flowline
Local Road	Proposed Structure	Surface Drainage	Delineated Wetland - PSS	100-Year Floodplain
Incorporated Area	Existing Structure	Delineated Stream	Delineated Wetland - PFO	Floodway
County Boundary	Existing Culvert End	Soil Type Boundary	Delineated Open Water	Parcel Boundary
		Hydric Soil Boundary	Study Area	5-Foot Contour

aes Ohio

gai consultants

0 100 200 Feet
1 in = 200 feet

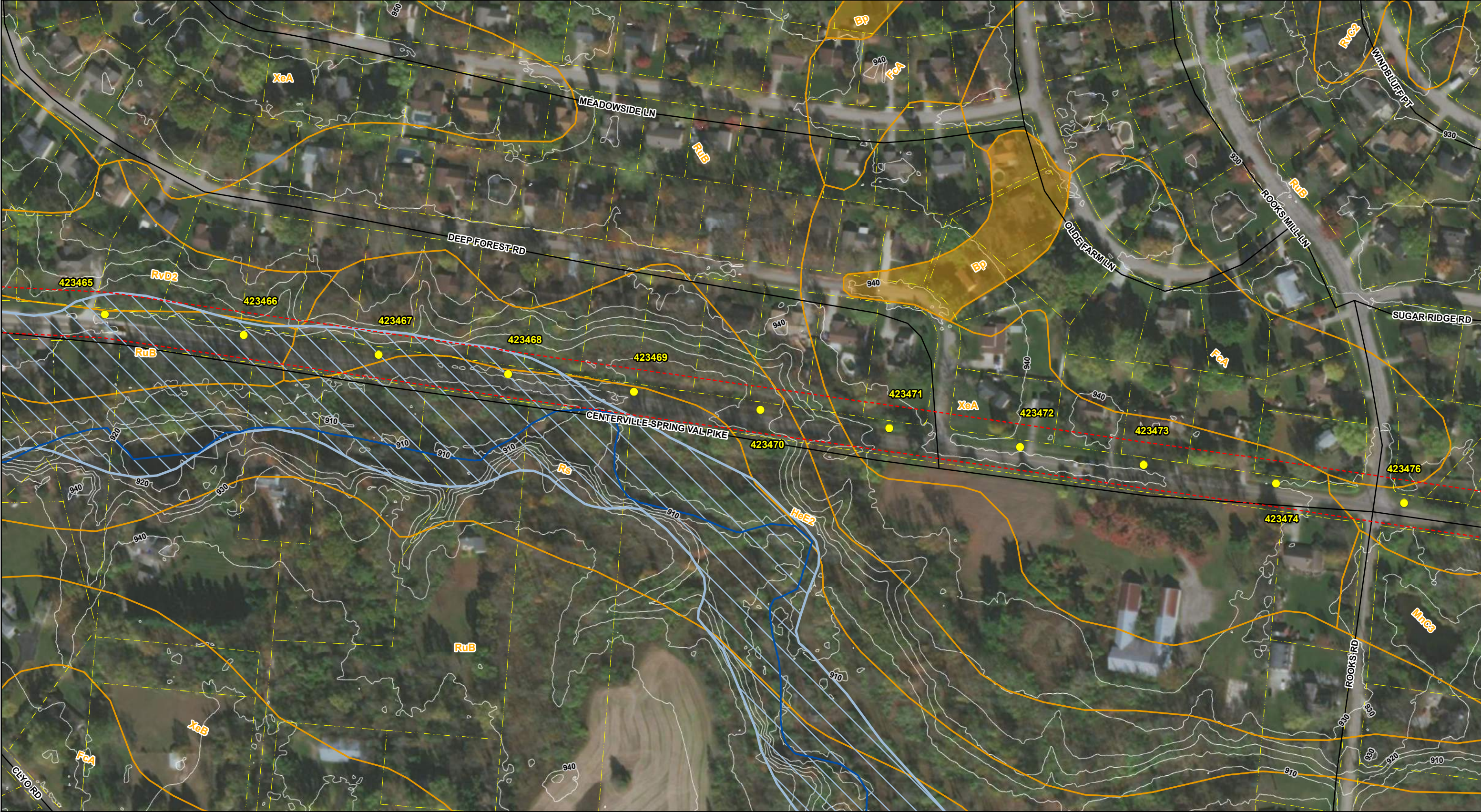
**FIGURE 2
RESOURCE LOCATION**

SHEET 5 of 10

Wetland Delineation and Stream Identification Report
Sugarcreek-Normandy Circuit Addition Project

**DRAWN BY: MBH
CHECKED: TDB**

**DATE: 5/25/2021
APPROVED: MRW**



SHEET INDEX

MONTGOMERY COUNTY

GREENE COUNTY

WARREN COUNTY

REFERENCE:

AERIAL PHOTOGRAPH:
- Esri's World Imagery 2020, Accessed: 5/25/2021.

INCORPORATED AREA:
- Ohio Department of Transportation's Cities, 9/11/2018.

COUNTY BOUNDARY:
- Ohio Department of Transportation's Counties, 9/11/2018.

HIGHWAY:
- Esri's U.S. Major Roads, 5/10/2018.

LOCAL ROAD:
- Ohio Department of Transportation's Roads, 9/11/2018.

NHD FLOWLINE:
- United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.

FLOODPLAIN AND FLOODWAY:
- Federal Emergency Management Agency's National Flood Hazard Layer, 2/18/2021.

SOIL TYPE BOUNDARY:
- United States Department of Agriculture's SSURGO, 6/11/2020.

HYDRIC SOIL TYPE CLASSIFICATION:
- Soil Type where proportion of the map unit classified as hydric is greater than 90 percent according to SSURGO database 6/11/2020 (hydclips field).

PARCELS:
- Downloaded from Greene and Montgomery County GIS, 6/15/2020.

5-FOOT CONTOUR:
- Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.

PROJECT DETAILS:
- AES Ohio.

State Highway	Existing Facility	Fence	Delineated Wetland - PEM	NHD Flowline
Local Road	Proposed Structure	Surface Drainage	Delineated Wetland - PSS	100-Year Floodplain
Incorporated Area	Existing Structure	Delineated Stream	Delineated Wetland - PFO	Floodway
County Boundary	Existing Culvert End	Soil Type Boundary	Delineated Open Water	Parcel Boundary
		Hydric Soil Boundary	Study Area	5-Foot Contour

aes Ohio

gai consultants

0 100 200 Feet

1 in = 200 feet

FIGURE 2

RESOURCE LOCATION

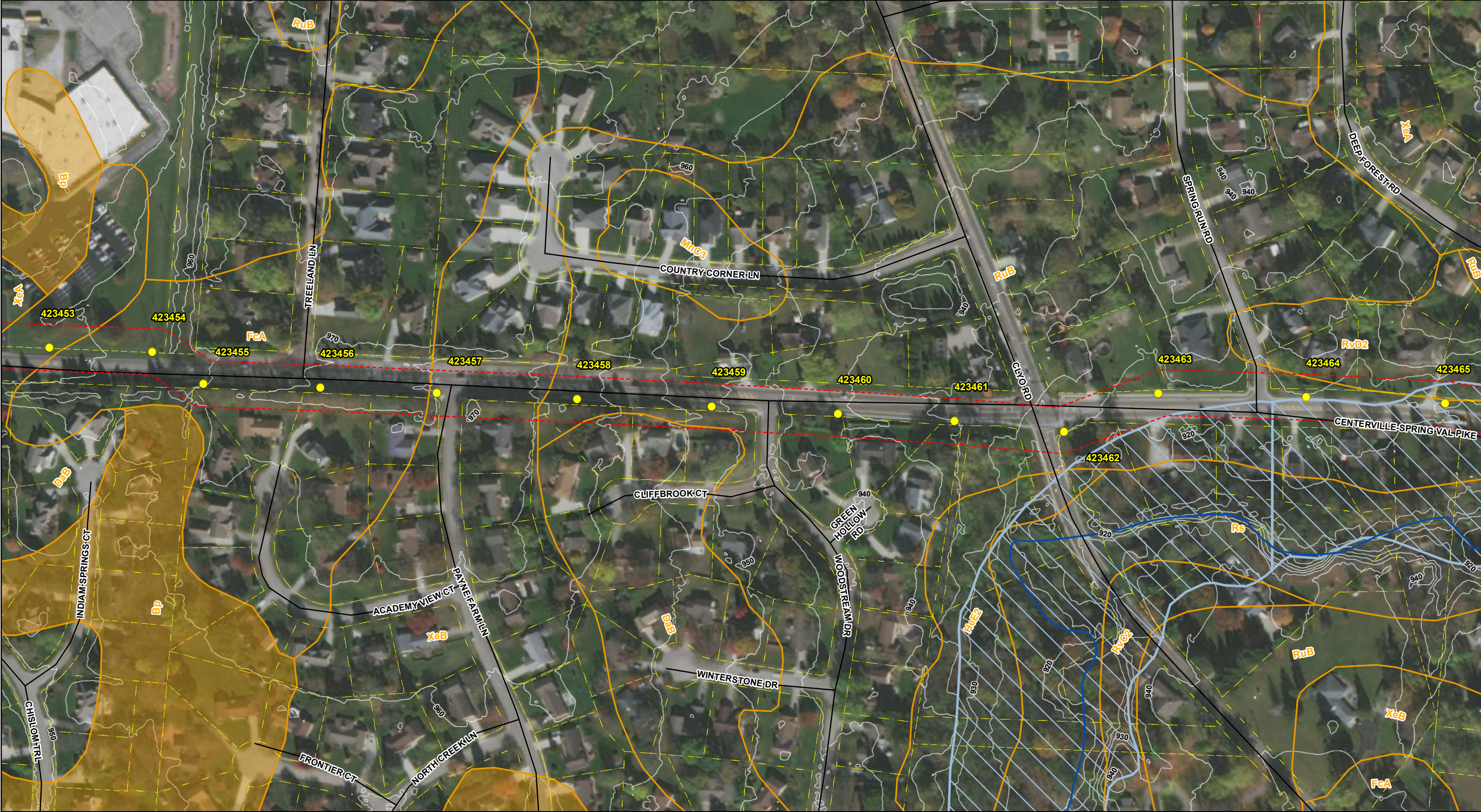
SHEET 6 of 10

Wetland Delineation and Stream Identification Report

Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
CHECKED: TDB

DATE: 5/25/2021
APPROVED: MRW



SHEET INDEX

MONTGOMERY COUNTY

GREENE COUNTY

WARREN COUNTY

REFERENCE:

AERIAL PHOTOGRAPH: Esri's World Imagery 2020, Accessed: 5/25/2021.

INCORPORATED AREA: Ohio Department of Transportation's Cities, 9/11/2018.

COUNTY BOUNDARY: Ohio Department of Transportation's Counties, 9/11/2018.

HIGHWAY: Esri's U.S. Major Roads, 5/10/2018.

LOCAL ROAD: Ohio Department of Transportation's Roads, 9/11/2018.

NHD FLOWLINE: United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.

FLOODPLAIN AND FLOODWAY: Federal Emergency Management Agency's National Flood Hazard Layer, 2/18/2021.

SOIL TYPE BOUNDARY: United States Department of Agriculture's SSURGO, 6/11/2020.

HYDRIC SOIL TYPE CLASSIFICATION: Soil Type where proportion of the map unit classified as hydric is greater than 90 percent according to SSURGO database 6/11/2020 (hydclips field).

PARCELS: Downloaded from Greene and Montgomery County GIS, 6/15/2020.

5-FOOT CONTOUR: Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.

PROJECT DETAILS: AES Ohio.

State Highway	Existing Facility	Fence	Delineated Wetland - PEM	NHD Flowline
Local Road	Proposed Structure	Surface Drainage	Delineated Wetland - PSS	100-Year Floodplain
Incorporated Area	Existing Structure	Delineated Stream	Delineated Wetland - PFO	Floodway
County Boundary	Existing Culvert End	Soil Type Boundary	Delineated Open Water	Parcel Boundary
		Hydric Soil Boundary	Study Area	5-Foot Contour

aes Ohio

gai consultants

0 100 200 Feet

1 in = 200 feet

FIGURE 2

RESOURCE LOCATION

SHEET 7 of 10

Wetland Delineation and Stream Identification Report

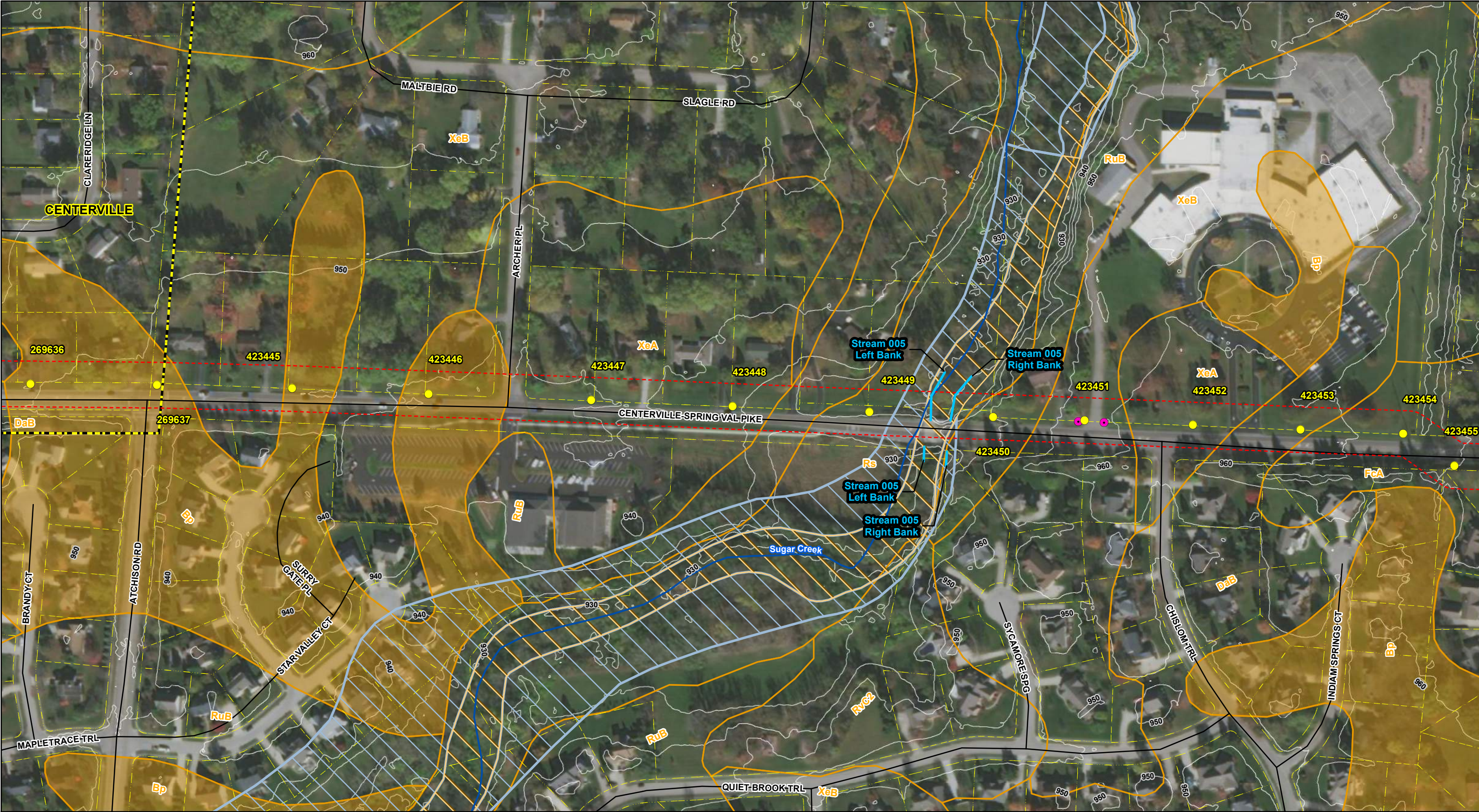
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH

CHECKED: TDB

DATE: 5/25/2021

APPROVED: MRW



SHEET INDEX

MONTGOMERY COUNTY

GREENE COUNTY

WARREN COUNTY

REFERENCE:

AERIAL PHOTOGRAPH: Esri's World Imagery 2020, Accessed: 5/25/2021.

INCORPORATED AREA: Ohio Department of Transportation's Cities, 9/11/2018.

COUNTY BOUNDARY: Ohio Department of Transportation's Counties, 9/11/2018.

HIGHWAY: Esri's U.S. Major Roads, 5/10/2018.

LOCAL ROAD: Ohio Department of Transportation's Roads, 9/11/2018.

NHD FLOWLINE: United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.

FLOODPLAIN AND FLOODWAY: Federal Emergency Management Agency's National Flood Hazard Layer, 2/18/2021.

SOIL TYPE BOUNDARY: United States Department of Agriculture's SSURGO, 6/11/2020.

HYDRIC SOIL TYPE CLASSIFICATION: Soil Type where proportion of the map unit classified as hydric is greater than 90 percent according to SSURGO database 6/11/2020 (hydclips field).

PARCELS: Downloaded from Greene and Montgomery County GIS, 6/15/2020.

5-FOOT CONTOUR: Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.

PROJECT DETAILS: AES Ohio.

State Highway	Existing Facility	Fence	Delineated Wetland - PEM	NHD Flowline
Local Road	Proposed Structure	Surface Drainage	Delineated Wetland - PSS	100-Year Floodplain
Incorporated Area	Existing Structure	Delineated Stream	Delineated Wetland - PFO	Floodway
County Boundary	Existing Culvert End	Soil Type Boundary	Delineated Open Water	Parcel Boundary
		Hydric Soil Boundary	Study Area	5-Foot Contour

0 100 200 Feet

1 in = 200 feet

FIGURE 2

RESOURCE LOCATION

SHEET 8 of 10

Wetland Delineation and Stream Identification Report

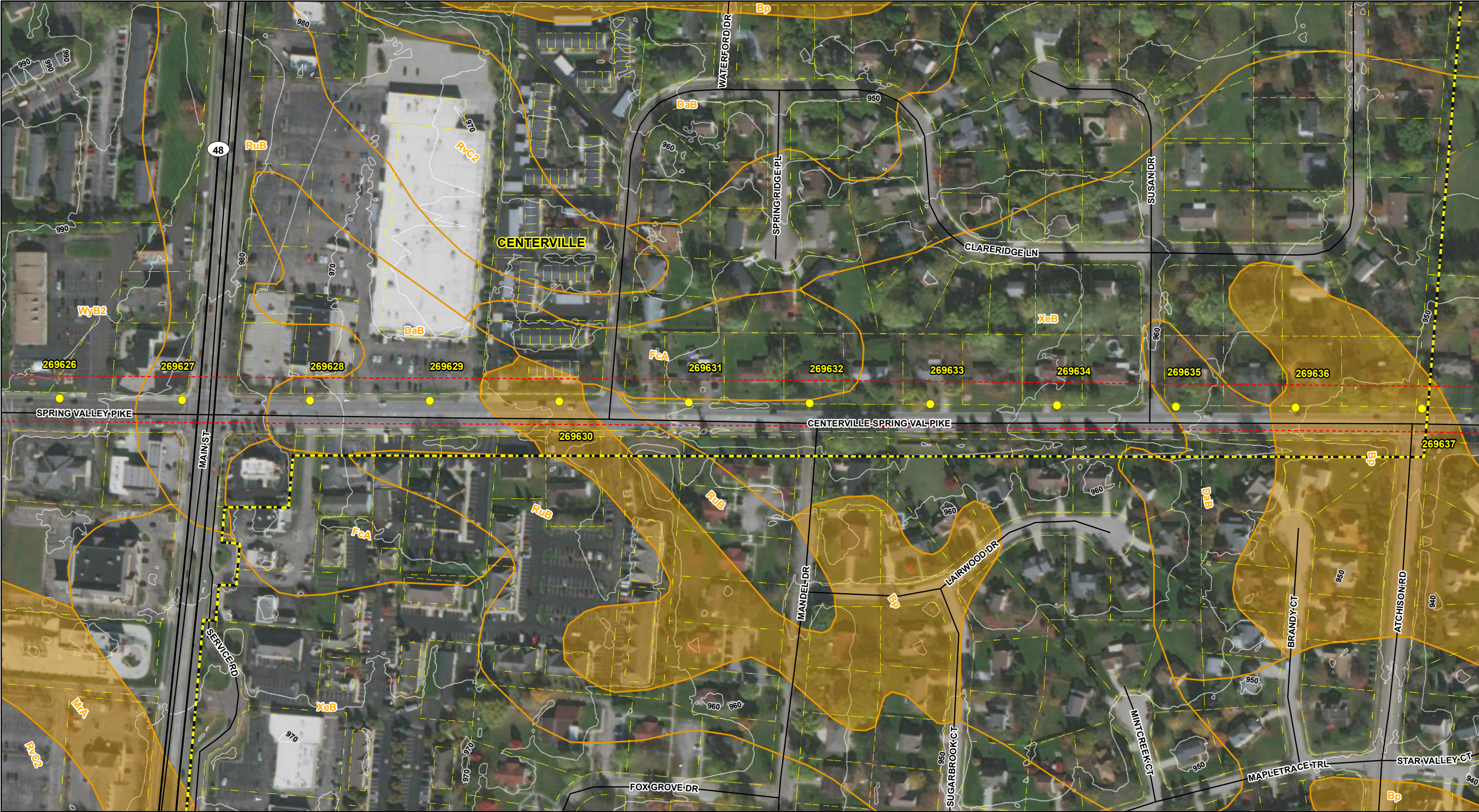
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH

CHECKED: TDB

DATE: 5/25/2021

APPROVED: MRW



SHEET INDEX

REFERENCE:

AERIAL PHOTOGRAPH: Esri's World Imagery 2020, Accessed: 5/25/2021.

INCORPORATED AREA: Ohio Department of Transportation's Cities, 9/11/2018.

COUNTY BOUNDARY: Ohio Department of Transportation's Counties, 9/11/2018.

HIGHWAY: Esri's U.S. Major Roads, 5/10/2018.

LOCAL ROAD: Ohio Department of Transportation's Roads, 9/11/2018.

NHD FLOWLINE: United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.

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5-FOOT CONTOUR: Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.

PROJECT DETAILS: AES Ohio.

State Highway	Existing Facility	Fence	Delineated Wetland - PEM	NHD Flowline
Local Road	Proposed Structure	Surface Drainage	Delineated Wetland - PSS	100-Year Floodplain
Incorporated Area	Existing Structure	Delineated Stream	Delineated Wetland - PFO	Floodway
County Boundary	Existing Culvert End	Soil Type Boundary	Delineated Open Water	Parcel Boundary
		Hydric Soil Boundary	Study Area	5-Foot Contour

aes Ohio

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0 100 200 Feet

1 in = 200 feet

FIGURE 2

RESOURCE LOCATION

SHEET 9 of 10

Wetland Delineation and Stream Identification Report

Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH

CHECKED: TDB

DATE: 5/25/2021

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SHEET INDEX

MONTGOMERY COUNTY

GREENE COUNTY

WARREN COUNTY

REFERENCE:

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INCORPORATED AREA: Ohio Department of Transportation's Cities, 9/11/2018.

COUNTY BOUNDARY: Ohio Department of Transportation's Counties, 9/11/2018.

HIGHWAY: Esri's U.S. Major Roads, 5/10/2018.

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SOIL TYPE BOUNDARY: United States Department of Agriculture's SSURGO, 6/11/2020.

HYDRIC SOIL TYPE CLASSIFICATION: Soil Type where proportion of the map unit classified as hydric is greater than 90 percent according to SSURGO database 6/11/2020 (hydclips field).

PARCELS: Downloaded from Greene and Montgomery County GIS, 6/15/2020.

5-FOOT CONTOUR: Ohio Geographically Referenced Information Program (OGRIP), Greene County, 2007.

PROJECT DETAILS: AES Ohio.

State Highway	Existing Facility	Fence	Delineated Wetland - PEM	NHD Flowline
Local Road	Proposed Structure	Surface Drainage	Delineated Wetland - PSS	100-Year Floodplain
Incorporated Area	Existing Structure	Delineated Stream	Delineated Wetland - PFO	Floodway
County Boundary	Existing Culvert End	Soil Type Boundary	Delineated Open Water	Parcel Boundary
		Hydric Soil Boundary	Study Area	5-Foot Contour

aes Ohio

gai consultants

0 100 200 Feet

1 in = 200 feet

FIGURE 2

RESOURCE LOCATION

SHEET 10 of 10

Wetland Delineation and Stream Identification Report

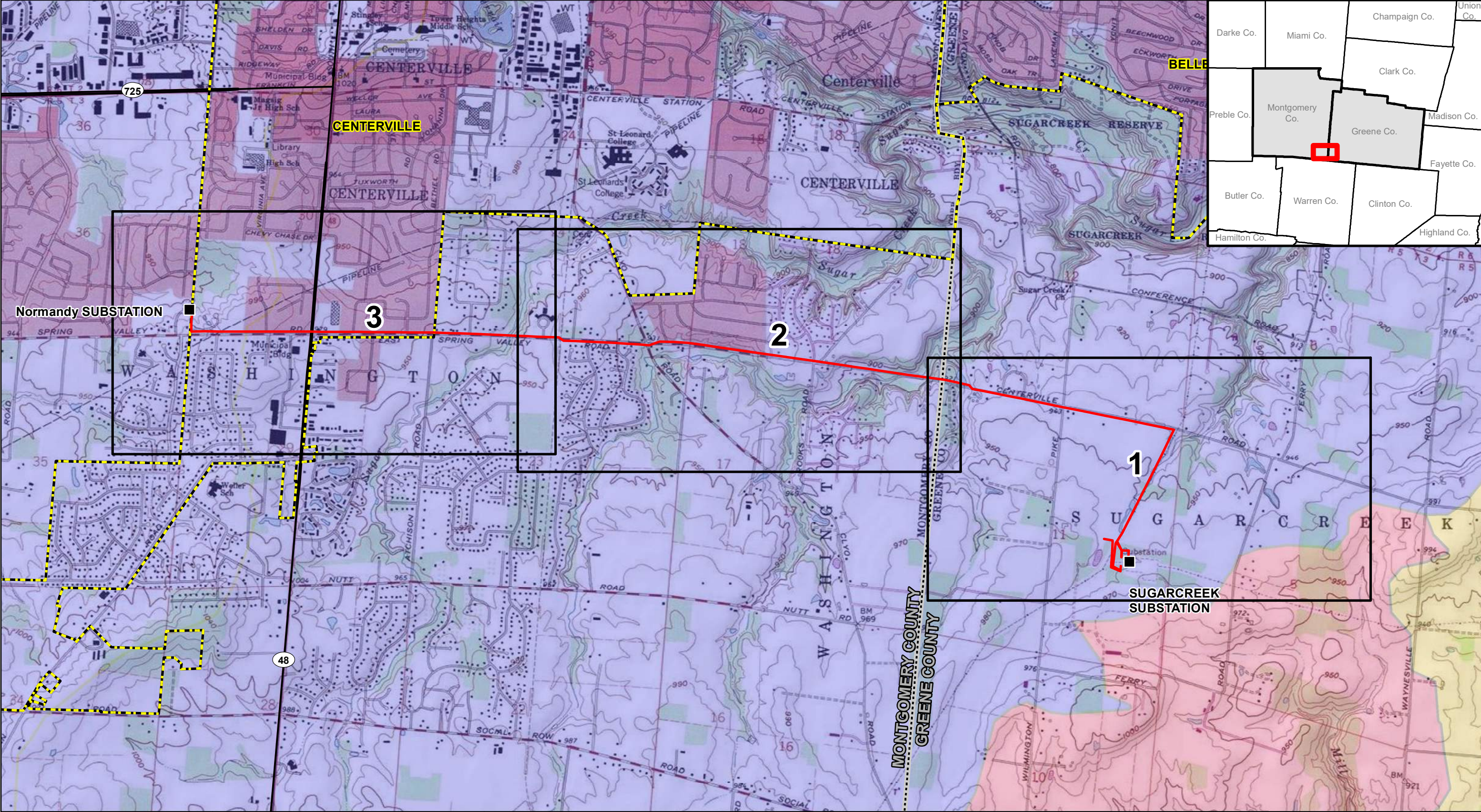
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH

CHECKED: TDB

DATE: 5/25/2021

APPROVED: MRW



PROJECT LOCATION

GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
TOPOGRAPHIC MAP:
- Esri's USA Topo Map, Accessed: 5/25/2021.
INCORPORATED AREA:
- Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY:
- Ohio Department of Transportation's Counties, 9/11/2018.
HIGHWAY:
- Esri's U.S. Major Roads, 5/10/2018.
STREAM ELIGIBILITY:
- Ohio Environmental Protection Agency (OEPA), 2017.
PROJECT DETAILS:
- AES Ohio.

State Highway	Existing Facility	OEPA NWP Eligibility
Incorporated Area	Route Centerline	Ineligible
County Boundary	Sheet Index	Possibly Eligible
		Eligible

FIGURE 3
STREAM ELIGIBILITY
SHEET INDEX

Wetland Delineation and Stream Identification Report


Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
CHECKED: TDB

DATE: 5/25/2021
APPROVED: MRW



PROJECT LOCATION



GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
AERIAL PHOTOGRAPH:
- Esri's World Imagery 2020, Accessed: 5/25/2021.
INCORPORATED AREA:
- Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY:
- Ohio Department of Transportation's Counties, 9/11/2018.
NHD FLOWLINE:
- United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.
WQS STREAMS:
- OEPA Water Quality Standards Website - <http://epa.ohio.gov/gis>.
STREAM ELIGIBILITY:
- Ohio Environmental Protection Agency (OEPA), 2017.
PROJECT DETAILS:
- AES Ohio.

Incorporated Area	Existing Facility	OEPA NWP Eligibility
County Boundary	Delineated Stream	Ineligible
	NHD Flowline	Possibly Eligible
	Study Area	Eligible




0 300 600 Feet
1 in = 600 feet



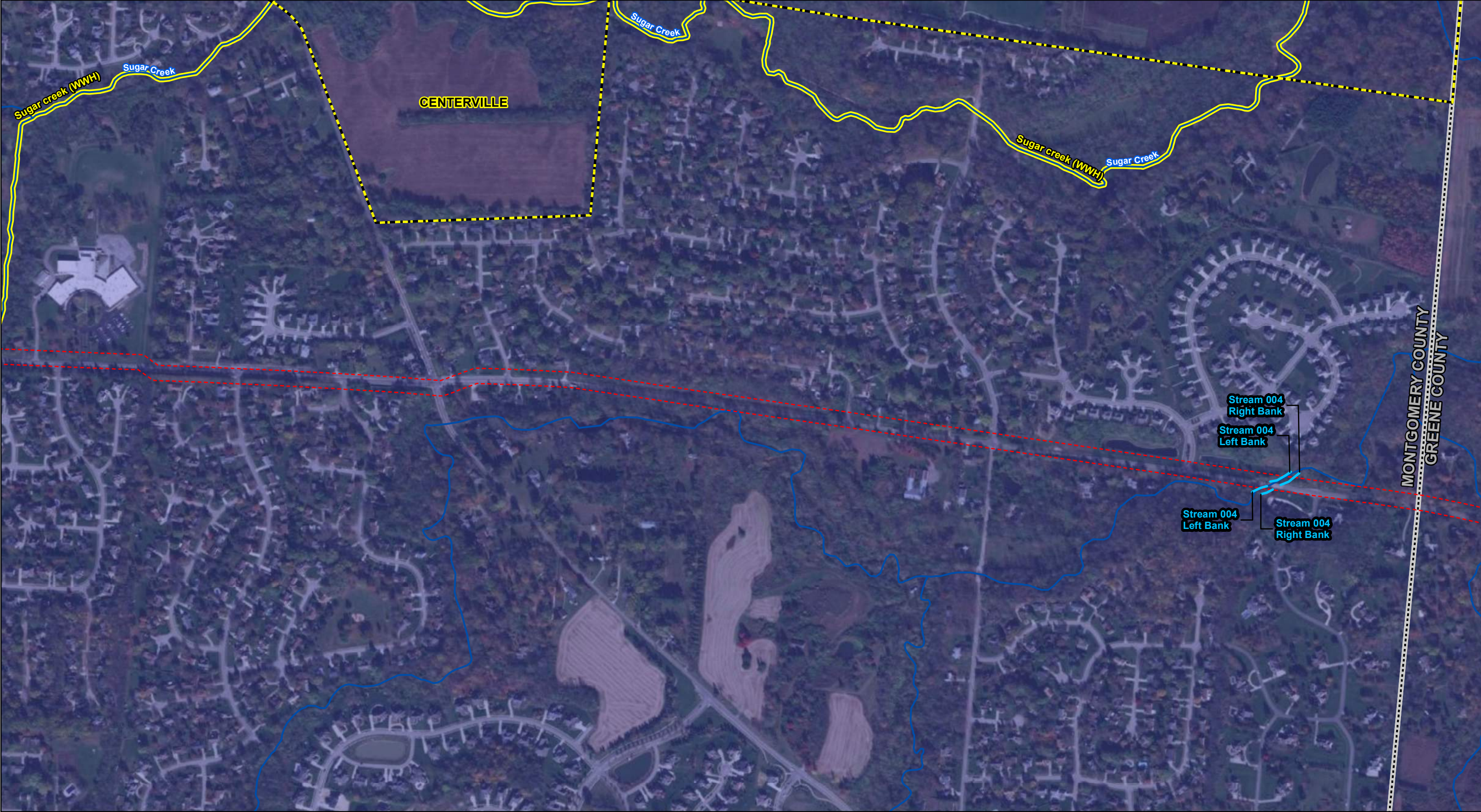
FIGURE 3
STREAM ELIGIBILITY

SHEET 1 of 3

Wetland Delineation and Stream Identification Report
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
CHECKED: TDB

DATE: 5/25/2021
APPROVED: MRW



PROJECT LOCATION

GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
AERIAL PHOTOGRAPH: Earth's World Imagery 2020, Accessed: 5/25/2021.
INCORPORATED AREA: Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY: Ohio Department of Transportation's Counties, 9/11/2018.
NHD FLOWLINE: United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.
WQS STREAMS: OEPA Water Quality Standards Website - <http://epa.ohio.gov/gis>.
STREAM ELIGIBILITY: Ohio Environmental Protection Agency (OEPA), 2017.
PROJECT DETAILS: AES Ohio.

Incorporated Area	Existing Facility	OEPA NWP Eligibility
County Boundary	Delineated Stream	Ineligible
	NHD Flowline	Possibly Eligible
	Study Area	Eligible

0 300 600 Feet
1 in = 600 feet

**FIGURE 3
STREAM ELIGIBILITY**

SHEET 2 of 3

Wetland Delineation and Stream Identification Report
Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
CHECKED: TDB

DATE: 5/25/2021
APPROVED: MRW



PROJECT LOCATION

GREENE AND MONTGOMERY COUNTY, OH

REFERENCE:
AERIAL PHOTOGRAPH: Earth's World Imagery 2020, Accessed: 5/25/2021.
INCORPORATED AREA: Ohio Department of Transportation's Cities, 9/11/2018.
COUNTY BOUNDARY: Ohio Department of Transportation's Counties, 9/11/2018.
NHD FLOWLINE: United States Geological Survey's National Hydrography Dataset Best Resolution, 6/16/2020.
WQS STREAMS: OEPA Water Quality Standards Website - <http://epa.ohio.gov/gis>.
STREAM ELIGIBILITY: Ohio Environmental Protection Agency (OEPA), 2017.
PROJECT DETAILS: AES Ohio.

Incorporated Area	Existing Facility	OEPA NWP Eligibility
County Boundary	Delineated Stream	Ineligible
	NHD Flowline	Possibly Eligible
	Study Area	Eligible

0 300 600 Feet
1 in = 600 feet

FIGURE 3
STREAM ELIGIBILITY

SHEET 3 of 3

Wetland Delineation and Stream Identification Report

Sugarcreek-Normandy Circuit Addition Project

DRAWN BY: MBH
CHECKED: TDB

DATE: 5/25/2021
APPROVED: MRW

APPENDIX A

Wetland Data Forms

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Sugarcreek #2 Transmission Line Project City/County: Greene County Sampling Date: 6/17/2020
 Applicant/Owner: AES Ohio State: OH Sampling Point: WDP-A1
 Investigator(s): T. Rankin, B. Rolfes Section, Township, Range: n/a
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 0% Lat: 39.600834 Long: -84.097615 Datum: NAD 83
 Soil Map Unit Name: Ra - Ragsdale silty clay loam, 0 to 2 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology 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 <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)																
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species <u>5%</u></td> <td>x1 = <u>0.05</u></td> </tr> <tr> <td>FACW species <u>79%</u></td> <td>x2 = <u>1.58</u></td> </tr> <tr> <td>FAC species <u>2%</u></td> <td>x3 = <u>0.06</u></td> </tr> <tr> <td>FACU species <u>17%</u></td> <td>x4 = <u>0.68</u></td> </tr> <tr> <td>UPL species <u> </u></td> <td>x5 = <u> </u></td> </tr> <tr> <td>Column Totals: <u>1.03</u> (A)</td> <td><u>2.37</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.30</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>5%</u>	x1 = <u>0.05</u>	FACW species <u>79%</u>	x2 = <u>1.58</u>	FAC species <u>2%</u>	x3 = <u>0.06</u>	FACU species <u>17%</u>	x4 = <u>0.68</u>	UPL species <u> </u>	x5 = <u> </u>	Column Totals: <u>1.03</u> (A)	<u>2.37</u> (B)	Prevalence Index = B/A = <u>2.30</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>5%</u>	x1 = <u>0.05</u>																			
FACW species <u>79%</u>	x2 = <u>1.58</u>																			
FAC species <u>2%</u>	x3 = <u>0.06</u>																			
FACU species <u>17%</u>	x4 = <u>0.68</u>																			
UPL species <u> </u>	x5 = <u> </u>																			
Column Totals: <u>1.03</u> (A)	<u>2.37</u> (B)																			
Prevalence Index = B/A = <u>2.30</u>																				
<u> </u> = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15' radius</u>) 1. <u> </u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> <u> </u> = Total Cover				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
1. <u> </u>																				
2. <u> </u>																				
3. <u> </u>																				
4. <u> </u>																				
5. <u> </u>				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
6. <u> </u>																				
7. <u> </u>																				
8. <u> </u>																				
9. <u> </u>																				
10. <u> </u>				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																
11. <u> </u>																				
12. <u> </u>																				
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22. <u> </u>																				
23. <u> </u>																				
24. <u> </u>																				
<u>103%</u> = Total Cover																				
25. <u> </u>																				
26. <u> </u>																				
27. <u> </u>																				
28. <u> </u>																				
Woody Vine Stratum (Plot size: <u>30' radius</u>) 1. <u> </u> 2. <u> </u> <u> </u> = Total Cover																				
3. <u> </u>																				
4. <u> </u>																				
5. <u> </u>																				
6. <u> </u>																				

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

SOIL

Sampling Point: WDP-A1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 3/1	90	10YR 4/6	5	C	M/PL	Silt Loam	
			10YR 2/1	5	D	M	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10)	<input checked="" type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			

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

Restrictive Layer (if observed):		Hydric Soil Present?	
Type: _____		Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/>
Depth (inches): _____			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required: check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations:		Wetland Hydrology Present?	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
(includes capillary fringe)			

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Sugarcreek #2 Transmission Line Project City/County: Greene County Sampling Date: 6/17/2020
 Applicant/Owner: AES Ohio State: OH Sampling Point: WDP-A2
 Investigator(s): T. Rankin, B. Rolfes Section, Township, Range: n/a
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 0% Lat: 39.601142 Long: -84.097714 Datum: NAD 83
 Soil Map Unit Name: Ra - Ragsdale silty clay loam, 0 to 2 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology 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 <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

Remarks:
 WDP-A2 is defined as the PSS portion of Wetland A.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. <u>Fraxinus pennsylvanica</u>	<u>2%</u>	<u>Yes</u>	<u>FACW</u>		Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)													
2. <u>Salix nigra</u>	<u>2%</u>	<u>Yes</u>	<u>OBL</u>															
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
<u>4%</u> = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)																		
1. <u>Fraxinus pennsylvanica</u>	<u>15%</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species <u>12%</u></td> <td>x1 = <u>0.12</u></td> </tr> <tr> <td>FACW species <u>72%</u></td> <td>x2 = <u>1.44</u></td> </tr> <tr> <td>FAC species <u>5%</u></td> <td>x3 = <u>0.15</u></td> </tr> <tr> <td>FACU species <u>10%</u></td> <td>x4 = <u>0.4</u></td> </tr> <tr> <td>UPL species <u> </u></td> <td>x5 = <u> </u></td> </tr> <tr> <td>Column Totals: <u>0.99</u> (A)</td> <td><u>2.11</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.13</u>	Total % Cover of:	Multiply by:	OBL species <u>12%</u>	x1 = <u>0.12</u>	FACW species <u>72%</u>	x2 = <u>1.44</u>	FAC species <u>5%</u>	x3 = <u>0.15</u>	FACU species <u>10%</u>	x4 = <u>0.4</u>	UPL species <u> </u>	x5 = <u> </u>	Column Totals: <u>0.99</u> (A)	<u>2.11</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>12%</u>	x1 = <u>0.12</u>																	
FACW species <u>72%</u>	x2 = <u>1.44</u>																	
FAC species <u>5%</u>	x3 = <u>0.15</u>																	
FACU species <u>10%</u>	x4 = <u>0.4</u>																	
UPL species <u> </u>	x5 = <u> </u>																	
Column Totals: <u>0.99</u> (A)	<u>2.11</u> (B)																	
2. <u>Salix nigra</u>	<u>10%</u>	<u>Yes</u>	<u>OBL</u>															
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
<u>25%</u> = Total Cover																		
Herb Stratum (Plot size: <u>5'</u> radius)																		
1. <u>Phalaris arundinacea</u>	<u>50%</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. <u>Solidago canadensis</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>															
3. <u>Carex vulpinoidea</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>															
4. <u>Carex davisii</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>															
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
<u>70%</u> = Total Cover																		
Woody Vine Stratum (Plot size: <u>30'</u> radius)																		
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>														
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>															
<u> </u> = Total Cover																		

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

SOIL

Sampling Point: WDP-A2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 3/1	90	10YR 4/6	5	C	M/PL	Silt Loam	
			10YR 2/1	5	D	M	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10)	<input checked="" type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			

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

Restrictive Layer (if observed):		Hydric Soil Present?	
Type: _____		Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/>
Depth (inches): _____			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required: check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations:		Wetland Hydrology Present?	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
(includes capillary fringe)			

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Sugarcreek #2 Transmission Line Project City/County: Greene County Sampling Date: 6/17/2020
 Applicant/Owner: AES Ohio State: OH Sampling Point: WDP-A3
 Investigator(s): T. Rankin, B. Rolfes Section, Township, Range: n/a
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 0% Lat: 39.601142 Long: -84.097814 Datum: NAD 83
 Soil Map Unit Name: Ra - Ragsdale silty Clay Loam, 0 to 2 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology 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 <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

Remarks:
 WDP-A3 is defined as the PFO portion of Wetland A.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Fraxinus pennsylvanica</u>	<u>30%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Ulmus americana</u>	<u>20%</u>	<u>Yes</u>	<u>FACW</u>	
3. <u>Acer saccharum</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
4. <u>Quercus muehlenbergii</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
5. <u> </u>	<u>70%</u>	<u> </u>	<u> </u>	
<u>70%</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u> </u> x1 = <u> </u> FACW species <u>75%</u> x2 = <u>1.5</u> FAC species <u>25%</u> x3 = <u>0.75</u> FACU species <u>25%</u> x4 = <u>1</u> UPL species <u> </u> x5 = <u> </u> Column Totals: <u>1.25</u> (A) <u>3.25</u> (B) Prevalence Index = B/A = <u>2.60</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)				
1. <u>Ulmus americana</u>	<u>15%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Acer negundo</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Lindera benzoin</u>	<u>10%</u>	<u>No</u>	<u>FACW</u>	
4. <u>Asimina triloba</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
5. <u>Fagus grandifolia</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
<u>55%</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u> radius)				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> = Total Cover				Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: <u>30'</u> radius)				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> = Total Cover				
Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>				

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

SOIL

Sampling Point: WDP-A3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/1	95	10YR 4/6	5	C	M/PL	Silt Loam	
10-18	10YR 3/2	80	10YR 4/6	10	C	M/PL	Silt Loam	
			10YR 4/2	10	D	M	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10)	<input checked="" type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			

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

Restrictive Layer (if observed):			
Type: _____			
Depth (inches): _____			
	Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required: check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

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

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Sugarcreek #2 Transmission Line Project City/County: Greene County Sampling Date: 6/17/2020
 Applicant/Owner: AES Ohio State: OH Sampling Point: WDP-B
 Investigator(s): T. Rankin, B. Rolfes Section, Township, Range: n/a
 Landform (hillslope, terrace, etc.): streambed Local relief (concave, convex, none): concave
 Slope (%): 5% Lat: 39.604823 Long: -84.095675 Datum: NAD 83
 Soil Map Unit Name: MhD2 - Miamian silt loam, 12 to 18 percent slopes, eroded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology 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 <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)																
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species <u>50%</u></td> <td>x1 = <u>0.5</u></td> </tr> <tr> <td>FACW species <u>60%</u></td> <td>x2 = <u>1.2</u></td> </tr> <tr> <td>FAC species <u> </u></td> <td>x3 = <u> </u></td> </tr> <tr> <td>FACU species <u> </u></td> <td>x4 = <u> </u></td> </tr> <tr> <td>UPL species <u> </u></td> <td>x5 = <u> </u></td> </tr> <tr> <td>Column Totals: <u>1.10</u> (A)</td> <td><u>1.7</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>1.55</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>50%</u>	x1 = <u>0.5</u>	FACW species <u>60%</u>	x2 = <u>1.2</u>	FAC species <u> </u>	x3 = <u> </u>	FACU species <u> </u>	x4 = <u> </u>	UPL species <u> </u>	x5 = <u> </u>	Column Totals: <u>1.10</u> (A)	<u>1.7</u> (B)	Prevalence Index = B/A = <u>1.55</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>50%</u>	x1 = <u>0.5</u>																			
FACW species <u>60%</u>	x2 = <u>1.2</u>																			
FAC species <u> </u>	x3 = <u> </u>																			
FACU species <u> </u>	x4 = <u> </u>																			
UPL species <u> </u>	x5 = <u> </u>																			
Column Totals: <u>1.10</u> (A)	<u>1.7</u> (B)																			
Prevalence Index = B/A = <u>1.55</u>																				
<u> </u> = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15' radius</u>) 1. <u> </u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> <u> </u> = Total Cover				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
Herb Stratum (Plot size: <u>5' radius</u>) 1. <u>Phalaris arundinacea</u> 40% Yes FACW 2. <u>Acorus calamus</u> 30% Yes OBL 3. <u>Carex vulpinoidea</u> 20% No FACW 4. <u>Carex frankii</u> 10% No OBL 5. <u>Eupatorium perfoliatum</u> 10% No OBL 6. <u> </u> 7. <u> </u> 8. <u> </u> 9. <u> </u> 10. <u> </u> 11. <u> </u> 12. <u> </u> 13. <u> </u> 14. <u> </u> 15. <u> </u> 16. <u> </u> 17. <u> </u> 18. <u> </u> 19. <u> </u> 20. <u> </u> <u>110%</u> = Total Cover																				
Woody Vine Stratum (Plot size: <u>30' radius</u>) 1. <u> </u> 2. <u> </u> <u> </u> = Total Cover					Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>															

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

SOIL

Sampling Point: WDP-B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 3/2	70	10YR 4/6	10	C	M/PL	Silt Loam	
			10YR 4/2	10	D	M	Silt 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: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____		Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____
---------------------------------------------------------------------------------	--	------------------------------------------------------------------------------

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply)				Secondary Indicators (minimum of two required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)			
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)			
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)				

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u> 3 </u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u> 4 </u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u> 0 </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX B

Upland Data Forms

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Sugarcreek #2 Transmission Line Project City/County: Greene County Sampling Date: 6/17/2020
 Applicant/Owner: AES Ohio State: OH Sampling Point: UDP-A1
 Investigator(s): T. Rankin, B. Rolfes Section, Township, Range: n/a
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.601256 Long: -84.097328 Datum: NAD 83
 Soil Map Unit Name: Ra - Ragsdale silty clay loam, 0 to 2 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology 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 <u> </u>	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			

Remarks:
 Corresponding upland datapoint for wetland A

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u> </u> x1 = <u> </u> FACW species <u> </u> x2 = <u> </u> FAC species <u> </u> x3 = <u> </u> FACU species <u>100%</u> x4 = <u>4</u> UPL species <u> </u> x5 = <u> </u> Column Totals: <u>1.00</u> (A) <u>4</u> (B) Prevalence Index = B/A = <u>4.00</u>
<u> </u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' radius</u>)				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> = Total Cover				
Herb Stratum (Plot size: <u>5' radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u> </u> 2-Dominance Test is >50% <u> </u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Schedonorus arundinaceus</u>	<u>40%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Trifolium repens</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Solidago canadensis</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>	
4. <u>Dipsacus fullonum</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
5. <u>Plantago lanceolata</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>100%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30' radius</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> = Total Cover				

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

SOIL

Sampling Point: UDP-A1

[illegible]

HYDROLOGY

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

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Sugarcreek #2 Transmission Line Project City/County: Greene County Sampling Date: 6/17/2020
 Applicant/Owner: AES Ohio State: OH Sampling Point: UDP-B
 Investigator(s): T. Rankin, B. Rolfes Section, Township, Range: n/a
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.604648 Long: -84.095654 Datum: NAD 83
 Soil Map Unit Name: MhD2 - Miamian silt loam, 12 to 18 percent slopes, eroded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology 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 <u> </u>	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			

Remarks:
 Corresponding upland datapoint for wetland B

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)																
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species <u> </u></td> <td>x1 = <u> </u></td> </tr> <tr> <td>FACW species <u> </u></td> <td>x2 = <u> </u></td> </tr> <tr> <td>FAC species <u> </u></td> <td>x3 = <u> </u></td> </tr> <tr> <td>FACU species <u>100%</u></td> <td>x4 = <u>4</u></td> </tr> <tr> <td>UPL species <u> </u></td> <td>x5 = <u> </u></td> </tr> <tr> <td>Column Totals: <u>1.00</u> (A)</td> <td><u>4</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>4.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u> </u>	x1 = <u> </u>	FACW species <u> </u>	x2 = <u> </u>	FAC species <u> </u>	x3 = <u> </u>	FACU species <u>100%</u>	x4 = <u>4</u>	UPL species <u> </u>	x5 = <u> </u>	Column Totals: <u>1.00</u> (A)	<u>4</u> (B)	Prevalence Index = B/A = <u>4.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u> </u>	x1 = <u> </u>																			
FACW species <u> </u>	x2 = <u> </u>																			
FAC species <u> </u>	x3 = <u> </u>																			
FACU species <u>100%</u>	x4 = <u>4</u>																			
UPL species <u> </u>	x5 = <u> </u>																			
Column Totals: <u>1.00</u> (A)	<u>4</u> (B)																			
Prevalence Index = B/A = <u>4.00</u>																				
<u> </u> = Total Cover																				

Sapling/Shrub Stratum (Plot size: <u>15' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u> = Total Cover			

Herb Stratum (Plot size: <u>5' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Schedonorus arundinaceus</u>	<u>40%</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Phleum pratense</u>	<u>37%</u>	<u>Yes</u>	<u>FACU</u>
3. <u>Trifolium repens</u>	<u>13%</u>	<u>No</u>	<u>FACU</u>
4. <u>Dipsacus fullonum</u>	<u>8%</u>	<u>No</u>	<u>FACU</u>
5. <u>Plantago lanceolata</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>100%</u> = Total Cover			

Woody Vine Stratum (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u> = Total Cover			

Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u> </u> 2-Dominance Test is >50% <u> </u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>
----------------------------------------	-----------------------------

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

SOIL

Sampling Point: UDP-B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 3/3	60					Silt Loam	Mixed Matrix
	10YR 3/4	40					Silt 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:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			

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

Restrictive Layer (if observed):		Hydric Soil Present?	
Type: _____		Yes _____	No <u>X</u>
Depth (inches): _____			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required: check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations:			
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): _____	
(includes capillary fringe)			

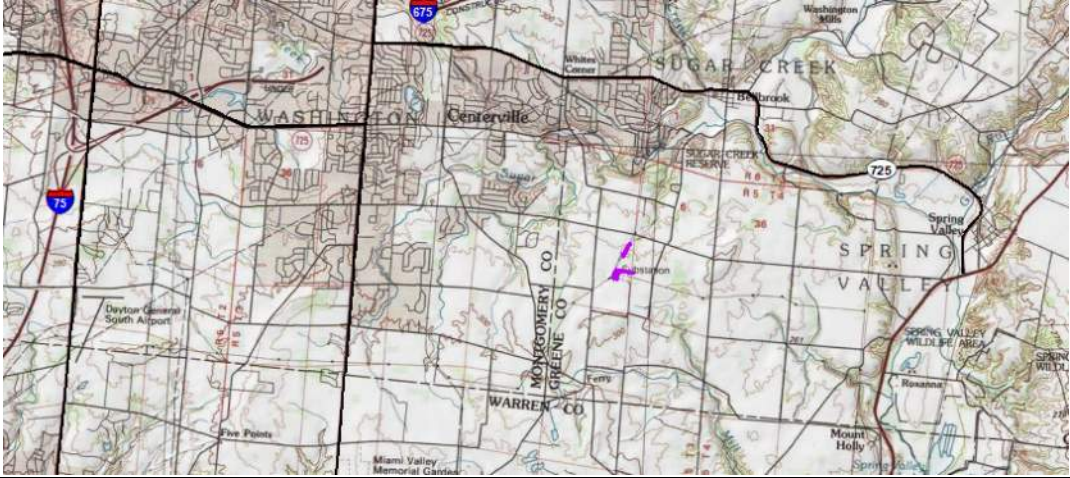
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX C

ORAM Forms

Background Information

Name:			
Date:			
Affiliation:			
Address:			
Phone Number:			
e-mail address:			
Name of Wetland:			
Vegetation Community(ies):			
HGM Class:			
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
			
Lat/Long or UTM Coordinate			
USGS Quad Name			
County			
Township			
Section and Subsection			
Hydrologic Unit Code			
Site Visit			
National Wetland Inventory Map			
Ohio Wetland Inventory Map			
Soil Survey			
Delineation report/map			

Name of Wetland:		
Wetland Size (acres, hectares):		
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.		
Comments, Narrative Discussion, Justification of Category Changes:		
<div style="background-color: black; width: 100%; height: 250px;"></div>		
Final score :		Category:

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

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

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

Site:

Rater(s):

Date:

Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

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

Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

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

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

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

Metric 3. Hydrology.

max 30 pts. subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

- ☐ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

- ☐ point source (nonstormwater)
- ☐ filling/grading
- ☐ road bed/RR track
- ☐ dredging
- ☐ other

Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

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

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

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

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

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

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

Check all disturbances observed

- ☐ mowing
- ☐ grazing
- ☐ clearcutting
- ☐ selective cutting
- ☐ woody debris removal
- ☐ toxic pollutants

- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☐ farming
- ☐ nutrient enrichment

subtotal this page

Site:		Rater(s):		Date:	
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subtotal first page

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Pure 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)

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Emergent bed
- ☐ Emergent
- ☐ Sub
- ☐ Forest
- ☐ Flats
- ☐ Open water
- ☐ Emer

6b. (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

End of Quantitative Rating. Complete Categorization Worksheets.

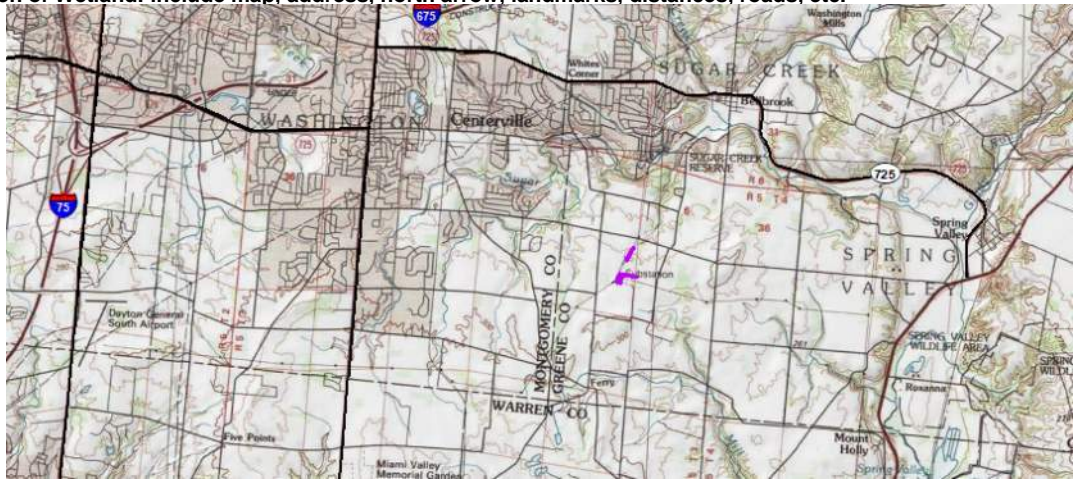
Wetland Categorization Worksheet

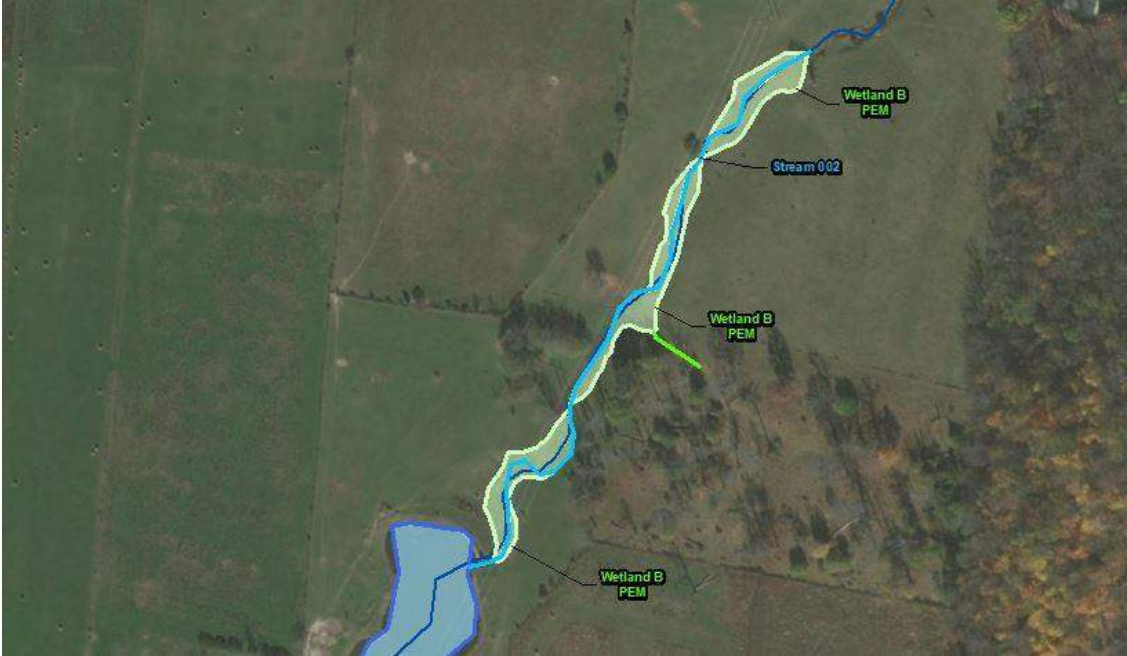
Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	<u>NO</u>	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold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

Final Category			
Choose one	Category 1	<u>Category 2</u>	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:			
Date:			
Affiliation:			
Address:			
Phone Number:			
e-mail address:			
Name of Wetland:			
Vegetation Community(ies):			
HGM Class:			
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			
			
Lat/Long or UTM Coordinate			
USGS Quad Name			
County			
Township			
Section and Subsection			
Hydrologic Unit Code			
Site Visit			
National Wetland Inventory Map			
Ohio Wetland Inventory Map			
Soil Survey			
Delineation report/map			

Name of Wetland:		
Wetland Size (acres, hectares):		
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.		
		
Comments, Narrative Discussion, Justification of Category Changes:		
<div style="background-color: black; width: 100%; height: 250px;"></div>		
Final score :		Category:

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

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

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

Site:

Rater(s):

Date:

Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

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

Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

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

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

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

Metric 3. Hydrology.

max 30 pts. subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

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

Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

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

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

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

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

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

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

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

subtotal this page

Site:	Rater(s):	Date:
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subtotal first page

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)

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other

6b. (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ Absent (0)

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

End of Quantitative Rating. Complete Categorization Worksheets.

Wetland Categorization Worksheet

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

Final Category			
Choose one	<input checked="" type="radio"/> Category 1	<input type="radio"/> Category 2	<input type="radio"/> Category 3

End of Ohio Rapid Assessment Method for Wetlands.

APPENDIX D

Descriptions of Soils Found Within the Project Study Area

<u>Soil Unit Symbol</u>	<u>Soil Unit Name</u>	<u>Acres</u>	<u>Predominantly Hydric¹</u>	<u>% within Study Area</u>
Bp	Brookston silt loam, fine subsoil, 0 to 2 percent slopes	2.32	Y	3.66%
DaB	Dana silt loam, 2 to 6 percent slopes	2.15	N	3.39%
EdB	Edenton silt loam, 2 to 6 percent slopes	0.00	N	0.00%
FcA	Fincastle silt loam, 0 to 4 percent slopes	2.48	N	3.92%
HeE2	Hennepin and Miamian silt loams, 18 to 25 percent slopes, moderately eroded	1.84	N	2.90%
HeF2	Hennepin and Miamian silt loams, 25 to 50 percent slopes, moderately eroded	0.30	N	0.47%
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	0.21	N	0.33%
MhC2	Miamian silt loam, 6 to 12 percent slopes, moderately eroded	4.75	N	7.51%
MhD2	Miamian silt loam, 12 to 18 percent slopes, eroded	1.54	N	2.44%
MpF	Miamian and Hennepin soils, 25 to 50 percent slopes	1.17	N	1.85%
MsC2	Milton silt loam, 6 to 12 percent slopes, moderately eroded	0.38	N	0.60%
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes	4.78	Y	7.56%
RdB	Raub silt loam, 2 to 6 percent slopes	0.49	N	0.78%
Rs	Ross silt loam, 0 to 2 percent slopes, occasionally flooded	6.19	N	9.79%
RuB	Russell silt loam, 2 to 6 percent slopes	8.19	N	12.95%
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	4.80	N	7.60%
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	0.61	N	0.97%
RvD2	Russell-Miamian silt loams, 12 to 18 percent slopes, moderately eroded	0.39	N	0.62%
WyB2	Wynn silt loam, 2 to 6 percent slopes, eroded	6.47	N	10.24%
XeA	Xenia silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	8.01	N	12.68%
XeB	Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	6.15	N	9.72%
TOTAL:		63.21	100%	

Notes:

- ¹ Predominantly hydric soil units are defined as those where the "proportion of the map unit, expressed as a class, that is "hydric", based on the hydric classification of individual map unit components" is greater than 50 percent according to the USDA SSURGO Database.

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Case No(s). 21-0496-EL-BLN

Summary: Notice of Construction of Sugarcreek to Normandy Circuit Addition Project
electronically filed by Mr. Michael F Russ on behalf of The Dayton Power and Light Company