

Letter of Notification for the Vassell - Curleys 345 kV Transmission Line Adjustment #2 Project



An **AEP** Company

BOUNDLESS ENERGY™

PUCO Case No. 25-0225-EL-BLN

Submitted to:
The Ohio Power Siting Board
Pursuant to Ohio Administrative Code
Section 4906-6-05

Submitted by:
AEP Ohio Transmission Company, Inc.

March 31, 2025

**LETTER OF NOTIFICATION FOR THE VASSELL – CURLEYS 345 KV TRANSMISSION LINE
ADJUSTMENT #2 PROJECT**

LETTER OF NOTIFICATION

AEP Ohio Transmission Company, Inc.

Vassell – Curleys 345 kV Transmission Line Adjustment # 2 Project

4906-6-05 Accelerated Application Requirements

AEP Ohio Transmission Company, Inc. (the “Company”) provides the following information to the Ohio Power Siting Board (OPSB) in accordance with the accelerated application requirements of Ohio Administrative Code Section 4906-6-05.

4906-6-05(B) General Information

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.

The Company proposes the Vassell – Curleys 345 kV Transmission Line Adjustment #2 Project (“Project”), located within Berkshire and Harlem townships in Delaware County, Ohio and Jersey and Monroe townships in Licking County, Ohio. The Project involves adjusting approximately 1.2 miles of the Vassell – Curleys 345 kV Transmission Line (approved OPSB Case No. 24-0118-EL-BLN and 24-0792-EL-BLN). The proposed adjustments are near the existing Vassell 345 kV Station (approved Case No. 11-1313-EL-BSB) and the proposed Curleys 345 kV Station (to be filed under separate application). Two additional proposed adjustments occur near State Route 605 and County Line Road. The four proposed adjustments address detailed engineering design and/or specific landowner requests. The location of the proposed transmission line (“Project Area”) is shown on **Maps 1, 2, and 3 in Appendix A**.

The Project meets the requirements for a Letter of Notification (“LON”) as defined by Items 1(d)(ii) of Appendix A to Ohio Administrative Code Section 4906-1-01, *Application Requirement Matrix for Electric Power Transmission Lines*:

(1) New construction, extension, or relocation of single or multiple circuit electric power transmission line(s), or upgrading existing transmission or distribution line(s) for operation at a higher transmission voltage, as follows:

(d) Line(s) primarily needed to attract or meet the requirements of a specific customer or customers as follows:

(ii) Any portion of the line is on property owned by someone other than the specific customer or applicant.

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The Project has been assigned Case No. 25-0225-EL-BLN.

B(2) Statement of Need

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

The Project involves adjusting approximately 1.2 miles of the Vassell – Curleys 345 kV Transmission Line. The need of the Project remains the same as what was reported in OPSB Case No. 24-0118-EL-BLN.

The New Albany area continues to see some of the fastest growing electric demand in the AEP system. The robust economic development activity in New Albany is creating a continued influx of new customer interconnection requests.

The approximate load in the New Albany area today is 500 MW and the demand is expected to exceed 2,000 MW by the end of 2027, and will continue to grow in future years. Due to the projected customer load, existing facilities that serve the area, including the 345 kV circuits between Corridor Station and Vassell Station, will exceed their thermal capacities under certain scenarios.

The Company proposes to introduce new 345 kV sources into the area to address identified planning criteria violations by constructing two new 345 kV transmission lines between the Company's Vassell Station and the Green Chapel and Curleys Stations, respectively. Several projects in the New Albany area will be needed to address issues created by the projected load growth and to serve the current demand of more than 10 new customer requests in the area.

Failure to move forward with the proposed Project and future projects will result in the inability to serve the various customer load expectations (existing and new customers). In addition to the direct customer service, failure to move forward with the Project would have a negative impact on economic development in the area.

Each customer need was presented and reviewed with stakeholders between February 2022 and April 2023, at the PJM SRRTEP or TEAC Meetings. The solution to the Project was presented in the December 5, 2023, PJM TEAC Meeting. The Project has been assigned the PJM supplemental number s3442.28. The Project was included in the Company's 2024 Long Term Forecast Report (LTFR) on pages 123 and 124 (See **Appendix B**).

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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 in relation to existing transmission lines and substations is shown on **Maps 1 and 2 in Appendix A. Map 3 in Appendix A** identifies the Project components on a 2022 aerial photograph.

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.

Over the past eight months, continued engineering design, and landowner negotiations have progressed and resulted in centerline shifts on the OPSB-approved Vassell – Curleys 345 kV Transmission Line in three locations. Overall, the proposed route adjustments better accommodate existing land uses within the Project area.

Two of the adjustments were requested by landowners to reduce impacts to farming operations. These shifts occur east of County Line Road (see Page 3 of 4 in **Map 3**) and west of State Route 605 (see Page 2 of 4 in **Map 3**).

The remaining adjustments are required for the updated engineering design of the Project. As shown on Page 1 of 4 in **Map 3**, near the existing Vassell 345 kV Station, a shift is required to allow a 25-foot setback from an existing underground pipeline. At the southeastern end of the Project, the proposed route adjustment accommodates updated engineering designs specific to the proposed Curleys Station and align the proposed route to connection points at the station (see Page 4 of 4 in **Map 3**).

No additional wetland, streams, tree clearing or cultural resource impacts are anticipated, and the proposed adjustments do not affect any additional landowners. Based on the information gathered, the Company selected the proposed route and adjustments as shown on **Map 3 in Appendix A**, which represents the most suitable location and most appropriate solution for the Project.

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.

The Company will inform affected property owners and tenants about this Project through several different mediums. Within seven days of filing this LON, the Company will issue a public notice in a

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newspaper of general circulation in the Project area. The notice will comply with all requirements of OAC Section 4906-6-08(A)(1-6). Further, the Company will mail a letter, via first class mail, to affected landowners, tenants, contiguous property owners and any other landowner the Company may approach for an easement necessary for the construction, operation, or maintenance of the Project. The letter will comply with all requirements of OAC Section 4906-6-08(B). The Company maintains a website (<http://aeptransmission.com/ohio/>) which hosts an electronic copy of this LON and the public notice of this LON. An electronic copy of the LON will be served to the public library in each political subdivision affected by this Project. In addition, the Company retains ROW land agents that discuss Project timelines, construction and restoration activities and convey this information to affected owners and tenants.

B(6) Construction Schedule

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

Construction of the Project is planned to begin in January 2026 with an anticipated in-service date of July 2027.

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.

Maps 1 and 2, in **Appendix A**, identify the location of the Project area on United States Geological Survey 1:24,000 topographic quadrangle maps (Johnstown, New Albany, and Sunbury). **Map 3** in **Appendix A** shows the Project area on a 2022 aerial photograph.

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.

A list of properties required for the Vassell – Curleys Transmission Line Adjustment No. 2 Project are provided in the table below.

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Property Parcel Number	Agreement Type	Easement or Option Obtained (Yes/No)
095-111408-00.000	New Easement Agreement	No
037-111954-00.001	New Easement Agreement	No
052-172668-00.000	New Easement Agreement	Yes
316-210-01-070.001	New Easement Agreement	Yes
416-330-01-012.001	New Easement Agreement	Yes
417-440-01-028.000	New Easement Agreement	Yes

The easement form exhibit provided in **Appendix C** represents the minimum easement rights the Company would require in order to construct, operate, and maintain these facilities.

B(9) Technical Features

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

B(9)(a) Operating characteristics, estimated number and types of structures required, and right-of-way and/or land requirements.

The proposed Vassell – Curleys 345 kV Transmission Line adjustments do not require any additional structure changes. The information provided in the Vassell – Curleys 345 kV Transmission Line (approved OPSB Case No. 24-0118-EL-BLN) remains accurate.

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.

B(9)(b)(i) Calculated Electric and Magnetic Field Strength Levels

Calculated Electric and Magnetic Field Levels

Not applicable. No occupied residences or institutions are located within 100 feet of the Project.

B(9)(b)(ii) Design Alternatives

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.

Not applicable. No occupied residences or institutions are located within 100 feet of the Project.

B(9)(b)(ii)(c) Project Cost

The estimated capital cost of the project.

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The cost estimate for the approved Vassell – Curleys 345 kV Transmission Line is approximately \$104.5 million using a Class 4 estimate. There is no cost increases associated with the proposed modifications.

B(10) Social and Ecological Impacts

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

B(10)(a) Operating Characteristics

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

The Project is located in Berkshire, Harlem, and Trenton townships within Delaware County, Ohio and in Jersey and Monroe townships in Licking County, Ohio. The northern portion of the Project is bounded by the City of Sunbury and the city of New Albany is located in the southeastern portion of the Project area. Cultivated farmland is the dominant land use for the overall project area, followed by residential development, as classified by the county auditors or identified during field review.

Residential areas are primarily clustered around US-62 near Fancher Road and County Line Road, and in the central portion of the Project. There are no schools, parks, churches, or cemeteries within 1,000 feet of the centerline of the Project. The Project crosses an environmental conservation easement established by the Company, located approximately 0.3 mile south of the existing Vassell Station on Company property. No proposed structures are located within the environmental conservation easement.

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.

The Licking County Auditor and Delaware County Auditor were contacted in March 2025 to obtain updated information about agricultural district lands for the properties crossed by the Project. Email correspondence from the auditors on March 19, 2025 and March 24, 2025 confirmed that the data previously acquired in August 2024 remains accurate. Two agricultural district land parcels in Licking County, which were crossed by the previous filing in Approved OPSB Case No. 24-0792-EL-BLN, are crossed by the current adjustments for the Project (see pages 3-4 in **Map 3, Appendix A**). No agricultural district land was identified along the Project in Delaware County. The proposed Vassell-Curleys 345 kV Adjustment No. 2 Project crosses no Ohio Department of Agriculture (“ODA”) conservation easements within the Project area.

In total, the Project occupies approximately 225 acres. Approximately 181 acres of the Project has historically been used for row crop land and less than 8 acres have historically been used for pasture/hayfields. However, agricultural impacts will be minimized by using monopole structures and agricultural activities are a compatible and permitted use within the transmission right-of-way.

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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 Company’s consultant completed Phase I Archaeological and Phase I History/Architectural surveys, involving subsurface testing and visual inspection, for a 300-foot-wide survey corridor that encompasses the proposed 150-foot-wide ROW of the proposed line route adjustments.

No previously unrecorded resources that were identified were considered as being landmarks or eligible for the National Register of Historic Places. As a result, the Company recommended to the SHPO that the overall project would have no adverse effect on historic properties and no further cultural resource work would be necessary. In their response, dated March 19, 2025, SHPO supported the consultant’s recommendations (see **Appendix D**).

B(10)(d) Local, State, and Federal Agency Correspondence

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

A Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction stormwater discharges under General Permit OHC000006. The Company will also coordinate stormwater permitting needs with the appropriate local entities as required. The Company will implement and maintain best management practices (“BMPs”) as outlined in the Project-specific Storm Water Pollution Prevention Plan (“SWPPP”) to minimize erosion control sediment to protect surface water quality during storm events.

Wetland and stream delineation field surveys were completed within the Proposed Route’s 150-foot-wide ROW for the Project by the Company’s consultant in June 2023, between September 2023 to January 2024, in July 2024, and January 2025 to account for proposed adjustments (see Addendum #3 Ecological Report in **Appendix E**). In the 9.4 acres of addendum ecological survey areas, the Company’s consultant identified one new PEM wetland and one new ephemeral stream. Additionally, the Company’s consultant extended one existing PEM/PFO wetland and two perennial streams. No additional impacts to delineated features are anticipated for the Project.

The Company is still evaluating construction and forestry needs to perform non-mechanized clearing of trees (i.e., root structures of trees remains intact) in order to determine the level of permitting for compliance with Clean Water Act (“CWA”) Permits. Prior to construction within jurisdictional waters (wetlands and/or streams), the Company intends to attain the necessary approvals from either or both

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the U.S. Army Corps of Engineers (“USACE”) or Ohio Environmental Protection Agency (“OEPA”), if warranted.

The FEMA Flood Insurance Rate Map (“FIRM”) was reviewed to identify any floodplains/flood hazard areas that have been mapped within the Project Area (specifically, map number 39041Co28oK, 39089Co14oH). Based on this mapping, FEMA-designated 100-year floodplains associated with Duncan Run and unnamed tributaries to Big Walnut Creek are crossed by the proposed alignment; however, no proposed structures are planned to be located within the floodplain areas. Local floodplain permitting, if deemed necessary for the Project, will be coordinated with agencies for the jurisdiction as applicable prior to construction.

B(10)(e) Threatened, Endangered, and Rare Species

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

Coordination letters were sent to U.S. Fish and Wildlife Service (USFWS) and Ohio Department of Natural Resources-Division of Wildlife (ODNR-DOW). The USFWS response was received on September 11, 2023, and ODNR-DOW's response was received on October 13, 2023. Copies of the agencies' correspondence letters are provided in **Appendix D**. The proposed route adjustments are minor and an update to the USFWS or ODNR-DOW was not necessary, as the original correspondence is still valid.

As part of the ecological study completed for the overall project, a coordination letter was submitted to the United States Fish and Wildlife Service (“USFWS”) Ohio Ecological Services Field Office seeking technical assistance on the overall project for potential impacts to threatened or endangered species. The September 11, 2023, response letter from the USFWS (see **Appendix D**) indicated that the federally endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) occur throughout the state of Ohio. The USFWS indicated that seasonal tree clearing would be required if suitable bat habitat trees were identified. Any tree clearing required for the overall project will adhere to seasonal restrictions (March 31 through October 1); therefore, adverse impacts to protected bat species are not anticipated as a result of the Project. Due to the Project type, size, and location, USFWS does not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species.

A coordination letter was submitted to the Ohio Department of Natural Resources (“ODNR”) Division of Wildlife (“DOW”) Ohio Natural Heritage Program (“ONHP”) and the ODNR - Office of Real Estate seeking an environmental review of the overall project for potential impacts on state listed and federally listed threatened or endangered species. Correspondence from ODNR DOW/OHNP and the ODNR –

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Office of Real Estate was received on October 13, 2023 (See Appendix D). According to the DOW, the Project is within the range of the state and federally endangered Indiana bat, the state and federally endangered northern long-eared bat, the state endangered little brown bat (*Myotis lucifugus*), and the state endangered tricolored bat (*Perimyotis subflavus*). Additionally, the DOW indicated that the southern portion of the overall project is within the vicinity of records for the northern long-eared bat. Because of the presence of state endangered bat species established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. Similar to the USFWS response, ODNR recommends cutting between October 1 and March 31 to avoid impacts to these protected bat species. Based on a desktop survey for caves, mines, and other potential openings, no winter hibernacula were identified within 0.25 mile of the Project (See **Appendix E**). The total acreage of tree clearing for the overall project remains unchanged by the proposed shifts. Approximately 30 acres of tree clearing are anticipated for the overall project, which will occur within the seasonal restrictions. Therefore, no additional coordination with ODNR regarding bat species is required.

The ODNR-DOW indicated that the overall project is within the range of five mussel species: the federally endangered rayed bean (*Villosa fabalis*), the federally endangered snuffbox (*Epioblasma triquetra*), the federally threatened rabbitsfoot (*Quadrula cylindrica cylindrica*), the state threatened salamander mussel (*Simpsonaias ambigua*), and the state threatened pondhorn (*Uniomorus tetralasmus*). No in-water work within a perennial stream is proposed for the overall project; therefore, these species are not anticipated to be impacted by the overall project.

In addition, the ODNR lists the overall project in the range of the northern harrier (*Circus hudsonius*). The ODNR recommends that nesting habitats for the listed species be avoided during their nesting periods. The professional survey completed for avian resources concluded no suitable habitat was observed for the northern harrier in the overall project area; therefore, no impacts to this bird species are anticipated.

Of the previous ten state and/or federal listed threatened and endangered species identified within range of the overall project area as identified within the Original Ecological Report (February 2024), no habitat for any of the listed aquatic or bird species were identified within the Addendum #3 Project Survey Area. However, the four bat species (Indiana bat, Northern long-eared bat, little brown bat, and tricolored bat) were identified as having potential summer roosting habitat and no hibernacula within the Addendum #3 Project Survey area, which is consistent with the original threatened and endangered species coordination for the original route.

A revised joint guidance between ODNR DOW and USFWS for Bat Surveys and Tree Clearing was released in May 2024. With the revised 2024 joint guidance, the Project retains a determination of “no effect” due to the absence of hibernacula within 0.25 mile of the Project area. Further coordination with either the USFWS and/or ODNR is still warranted if tree clearing for the overall project cannot be completed during the seasonal tree clearing restriction (October 1 – March 31). A copy of the Addendum #3 Ecological Report with further discussion of threatened and endangered species has been provided in **Appendix E**.

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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 stated in Section B(10)(e), a copy of the correspondence letters received from the USFWS and ODNR-DOW are provided in **Appendix D**. USFWS indicated no impacts to proposed or designated critical habitats, which is still true with the proposed route adjustment.

The Company's consultant conducted a wetland and stream delineation survey in the overall project study area and prepared an Ecological Survey Report. The Company's consultant conducted additional surveys and prepared an addendum to the report per the route alignment change. The Addendum #3 Ecological Report is provided in **Appendix E**.

Within the 9.4 acres of the Addendum #3 survey areas, the Company's consultant identified one new PEM wetland and one new ephemeral stream and extended one existing PEM/PFO wetland and two perennial streams. Out of the newly identified and extended resources within the Addendum #3 survey area, none of the features were identified within the proposed 150-foot-wide ROW. Approximately 30 acres of tree clearing within the ROW is anticipated for the overall project, of which, 4.6 acres occur in delineated PFO wetlands. The acreages of tree clearing for the overall project remain unchanged by the proposed shifts.

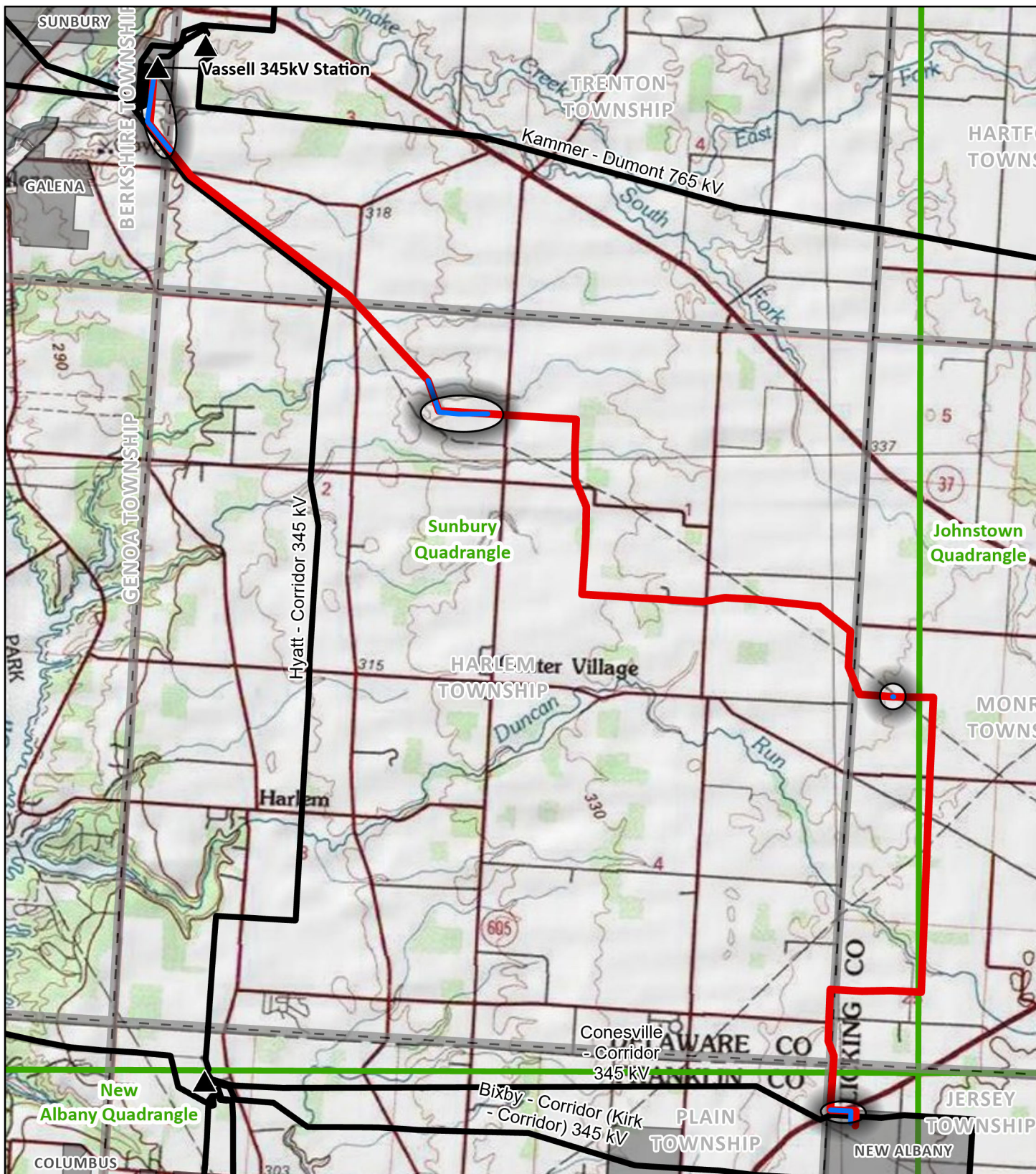
Based on a review of the Protected Areas Database of the United States as well as the Conservation Easement Database, there are no state or national parks, forests, or wildlife areas within the vicinity of the Project. However, the Project crosses an environmental conservation easement on Company-owned property, located approximately 0.3 mile south of the existing Vassell Station (see Map 3 in **Appendix A**), which was established by the Company and is held by the Preservation Parks District of Delaware City. No proposed structures are located within the environmental conservation easement.

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 the Company's knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.

Appendix A Project Maps



- | | |
|--|---------------------------------------|
| ▲ Existing AEP Substation | — Existing AEP Transmission Line |
| ○ Proposed Shift | — Municipality |
| — Vassell-Curleys 345kV Transmission Line (Approved Case No. 24-0792-EL-BLN) | — Township Boundary |
| — Proposed Shifts to the Vassell-Curleys 345kV Transmission Line | — USGS 7.5' Topographic Quad Boundary |

Sources:
USGS (2021)

StatePlane
Ohio North
NAD 83



March 31, 2025

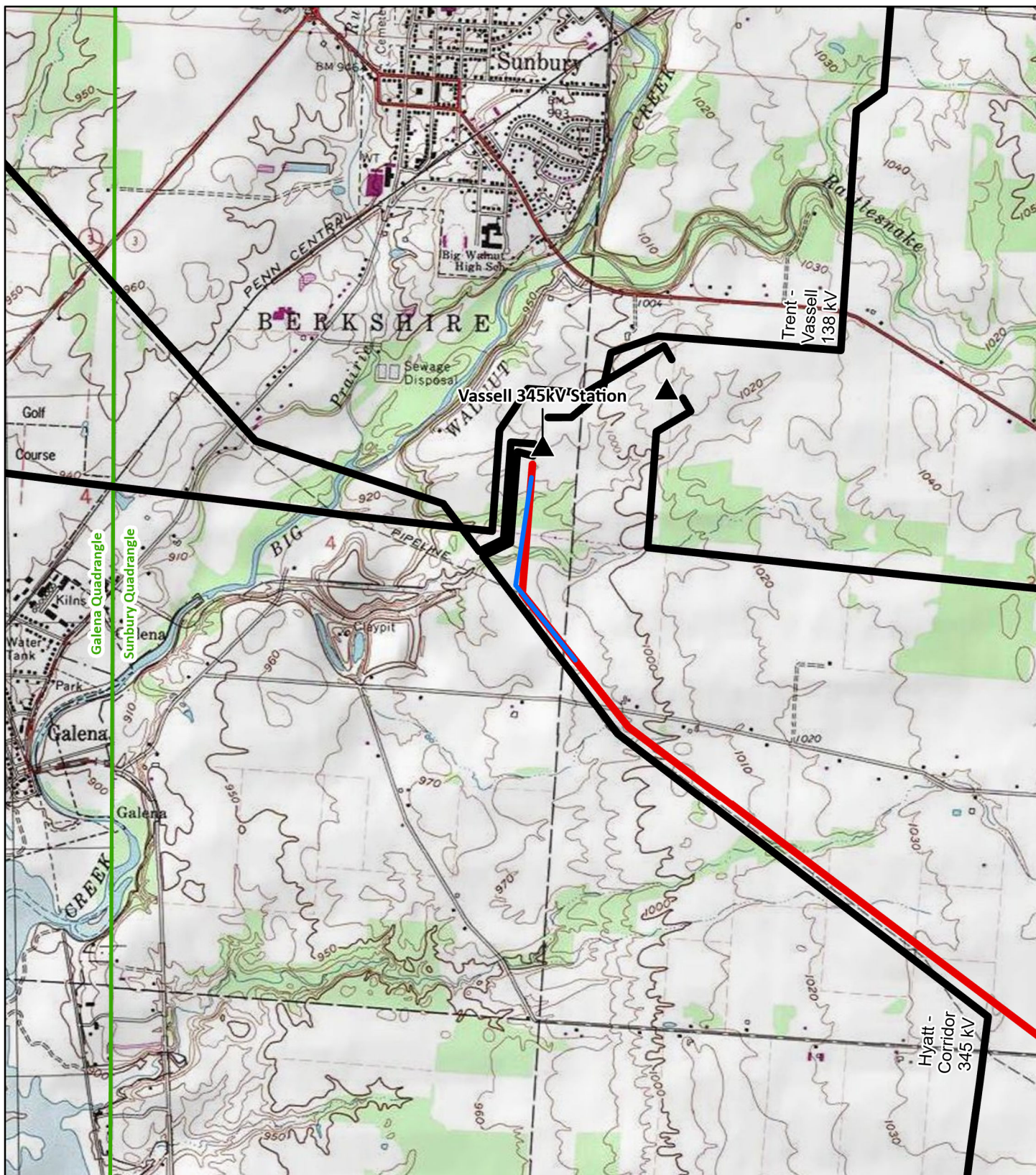


Map 1 Project Overview

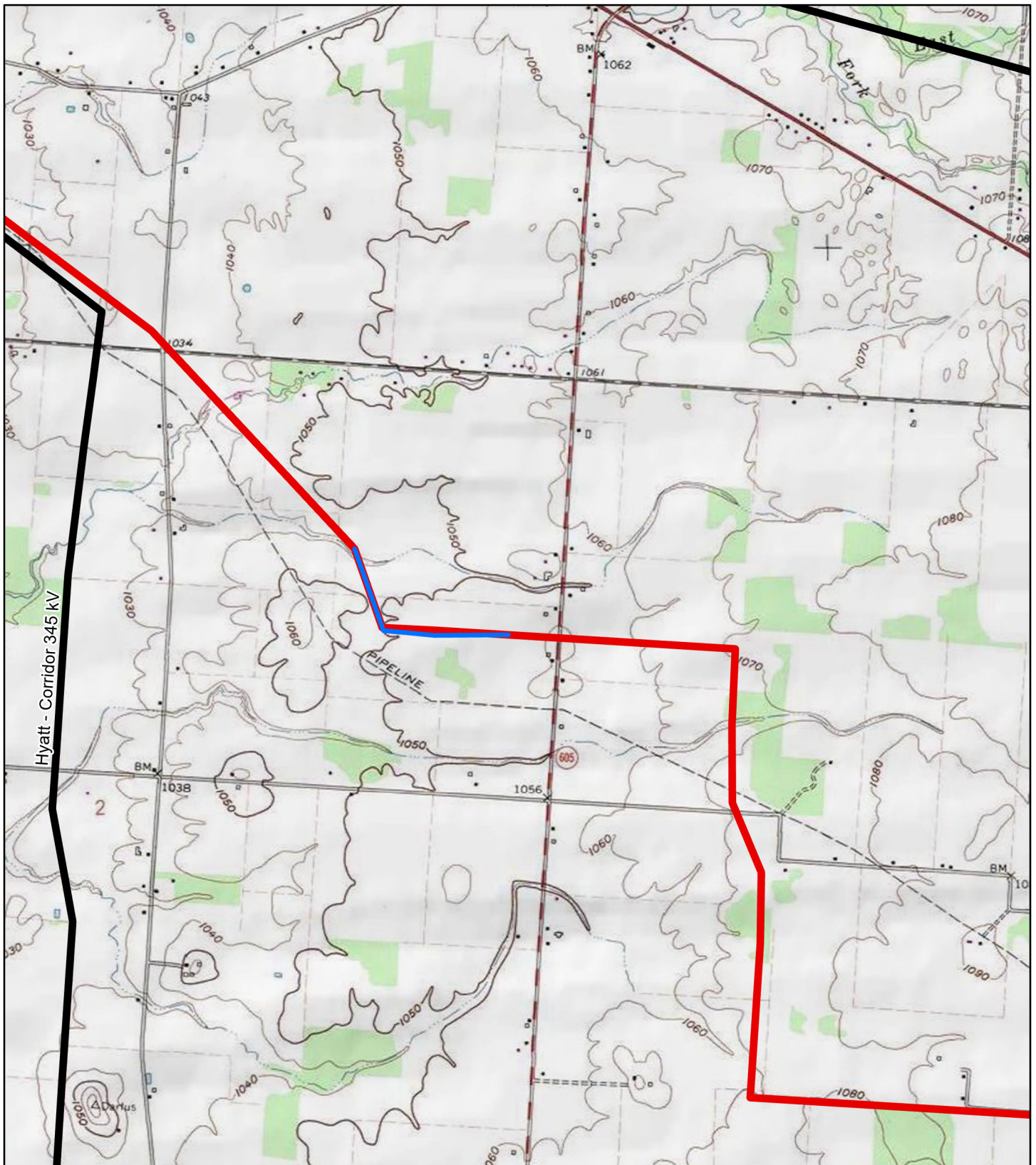


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<ul style="list-style-type: none"> ▲ Existing AEP Substation — Proposed Shifts to the Vassell-Curleys 345kV Transmission Line — Vassell-Curleys 345kV Transmission Line (Approved Case No. 24-0792-EL-BLN) — Existing AEP Transmission Line □ USGS 7.5' Topographic Quad Boundary 	<p>Sources: USGS (2021)</p> <p>StatePlane Ohio North NAD 83</p> <p>March 31, 2025</p>		<p>Map 2 Project Area</p> <p>Vassell - Curleys 345 kV Transmission Line Adjustment #2 Project</p> <p>0 1,000 2,000 Feet</p>
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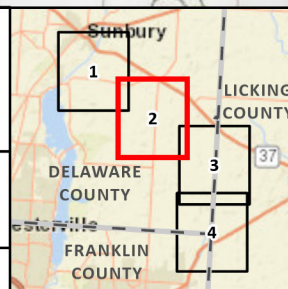
- Proposed Shifts to the Vassell-Curleys 345kV Transmission Line
- Vassell-Curleys 345kV Transmission Line (Approved Case No. 24-0792-EL-BLN)
- Existing AEP Transmission Line
- USGS 7.5' Topographic Quad Boundary

Sources:
USGS (2021)

StatePlane
Ohio North
NAD 83



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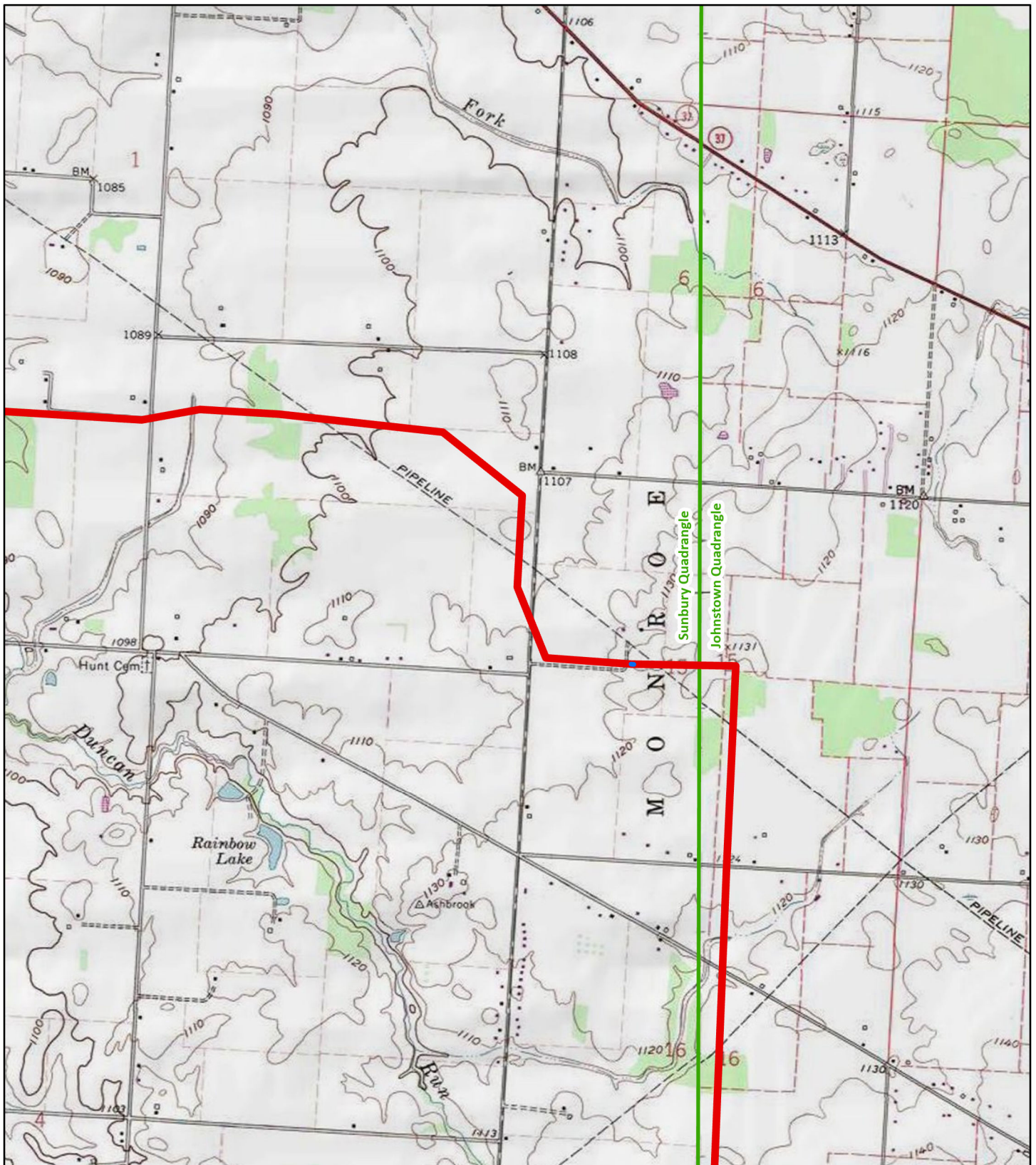






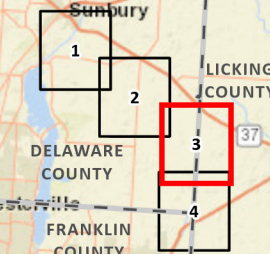

Map 2 Project Area

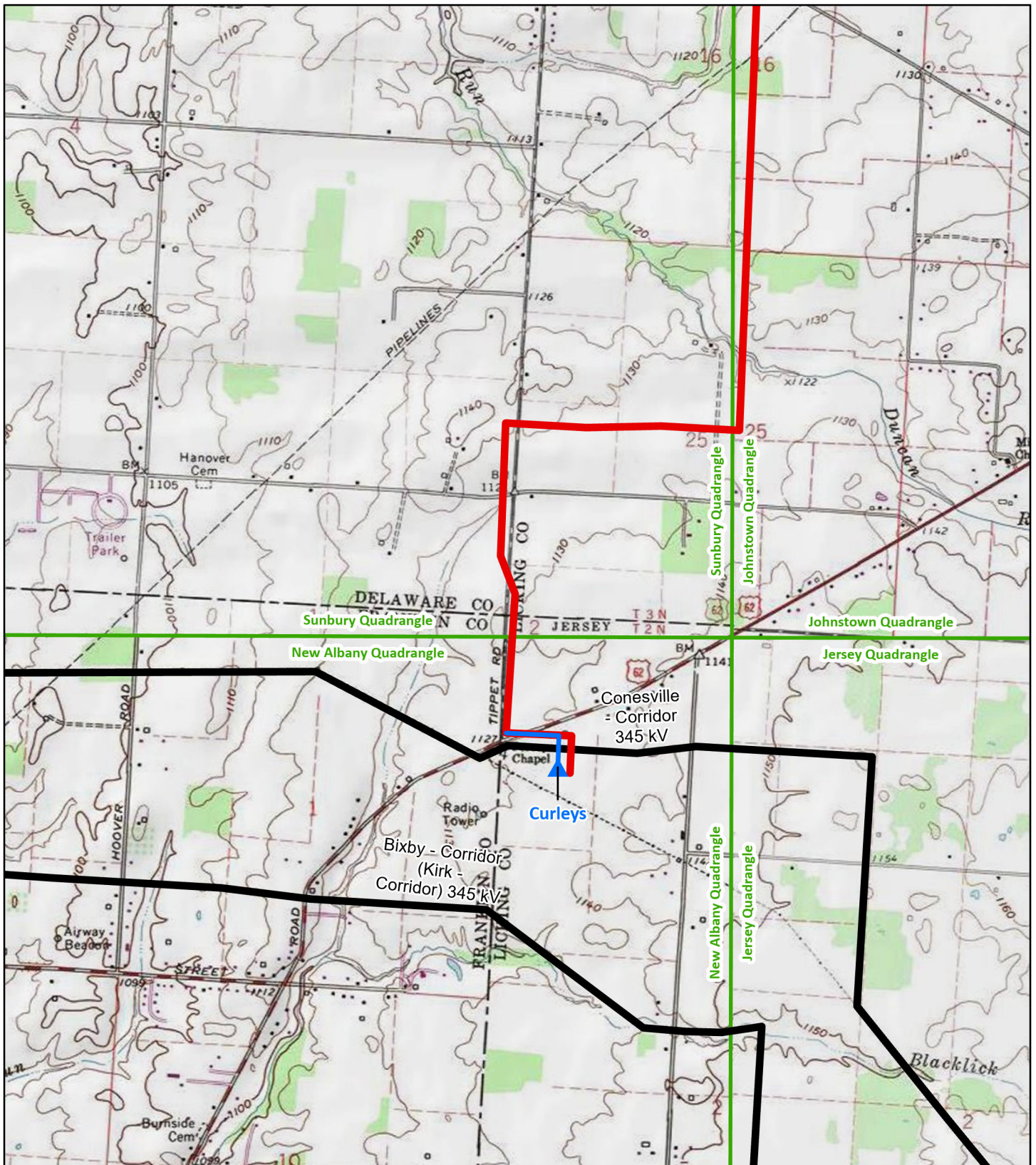


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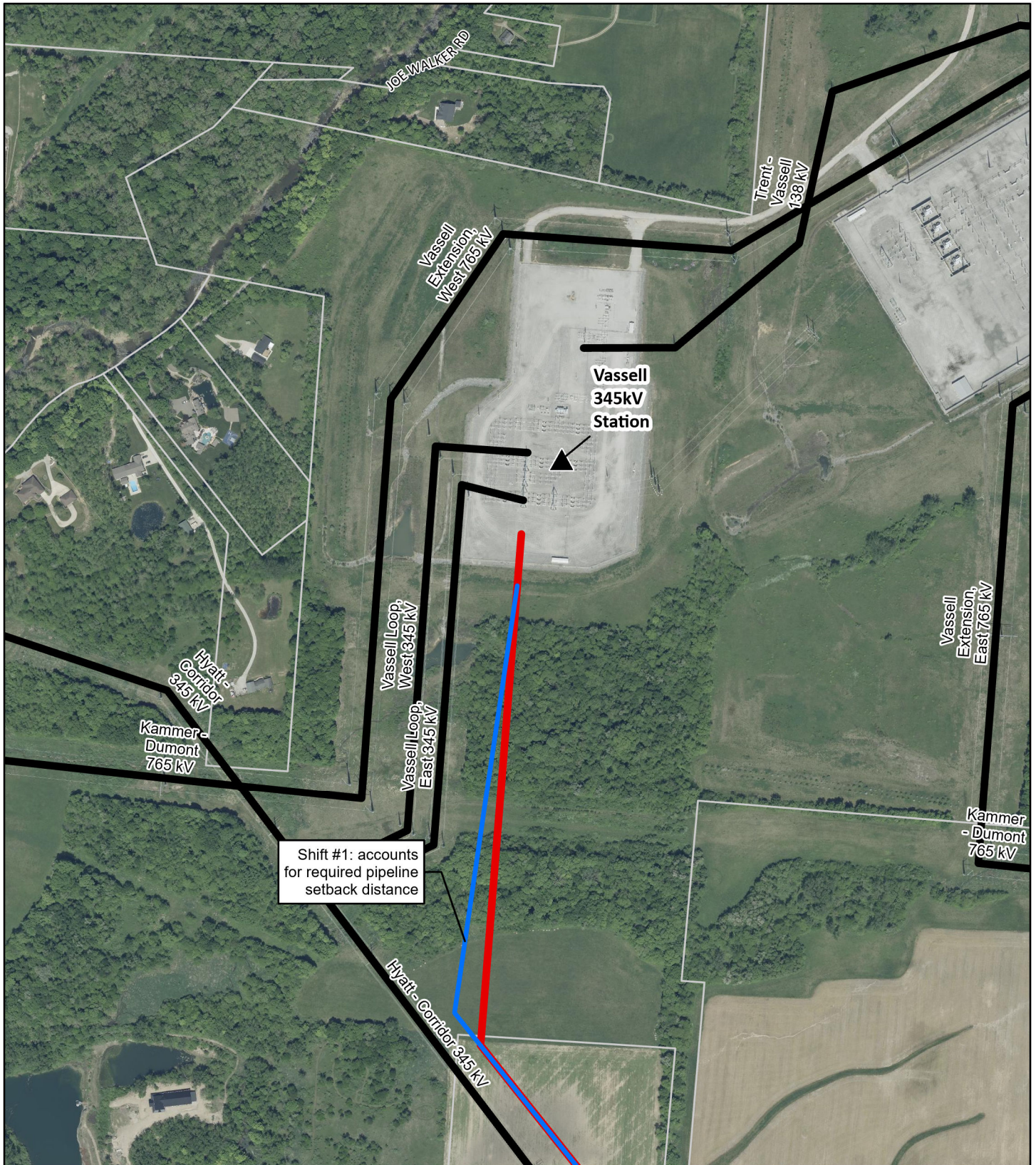
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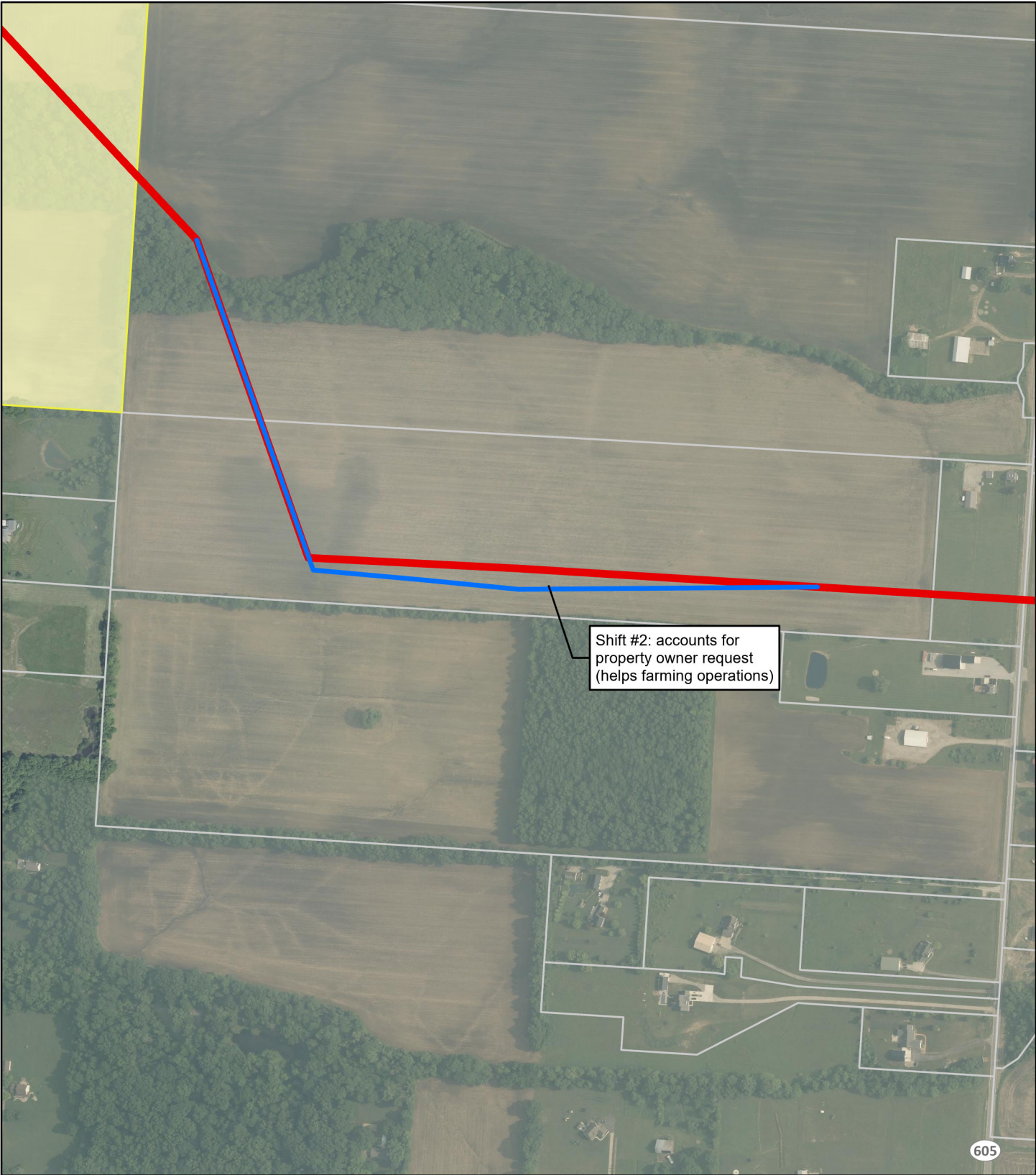
<p>  Proposed Shifts to the Vassell-Curleys 345kV Transmission Line  Vassell-Curleys 345kV Transmission Line (Approved Case No. 24-0792-EL-BLN)  USGS 7.5' Topographic Quad Boundary </p>	<p>Sources: USGS (2021)</p> <p>StatePlane Ohio North NAD 83</p> <p>March 31, 2025</p> <p></p>		<p>Map 2 Project Area</p> <p>Vassell - Curleys 345 kV Transmission Line Adjustment #2 Project</p> <p></p> <p>0 1,000 2,000 Feet</p>
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






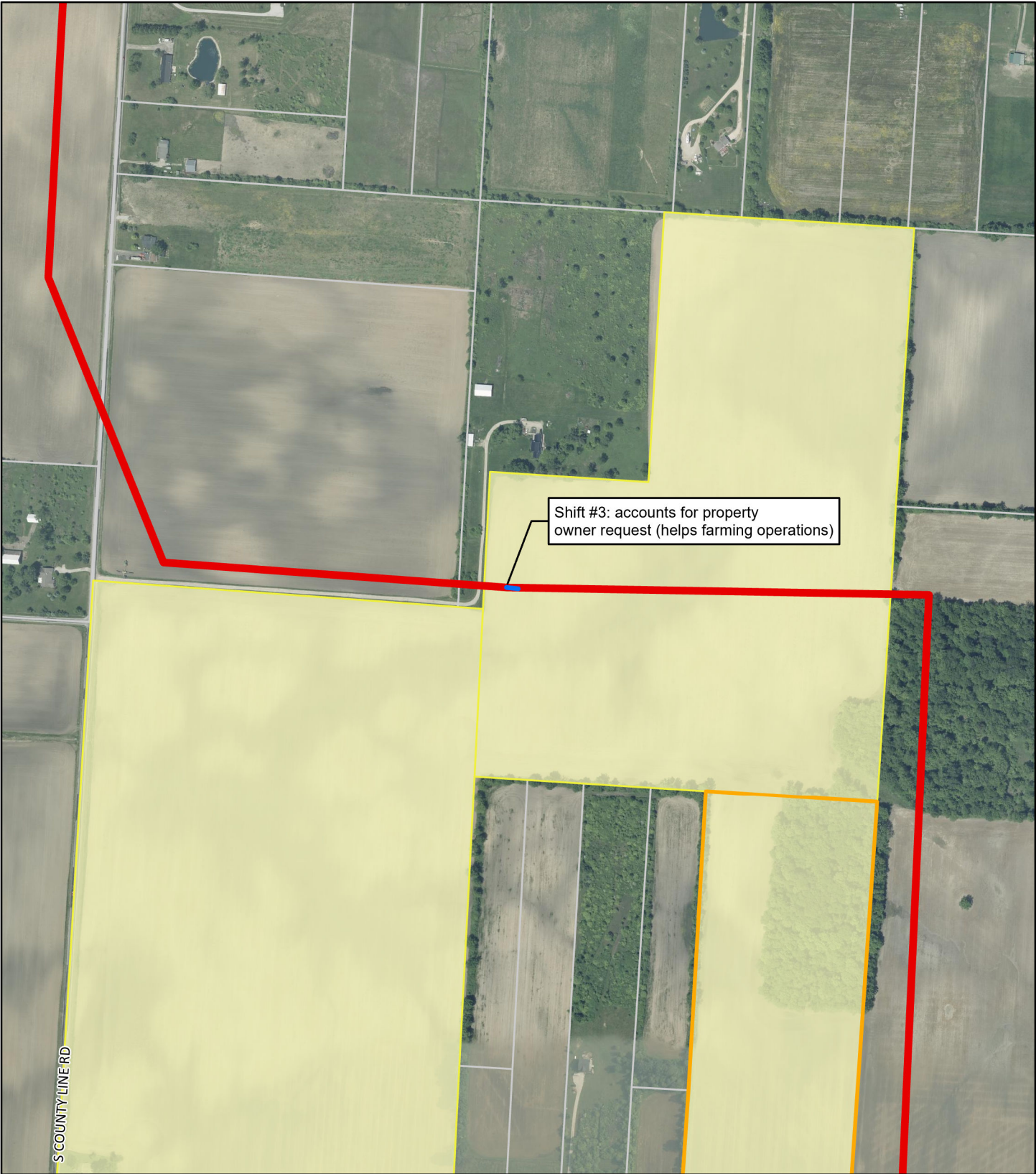
<ul style="list-style-type: none"> ▲ Proposed AEP Substation — Proposed Shifts to the Vassell-Curleys 345kV Transmission Line — Vassell-Curleys 345kV Transmission Line (Approved Case No. 24-0792-EL-BLN) — Existing AEP Transmission Line □ USGS 7.5' Topographic Quad Boundary 	<p>Sources: USGS (2021)</p> <p>StatePlane Ohio North NAD 83</p> <p>March 31, 2025</p>		<p>Map 2 Project Area</p> <p>Vassell - Curleys 345 kV Transmission Line Adjustment #2 Project</p> <p>0 1,000 2,000 Feet</p>
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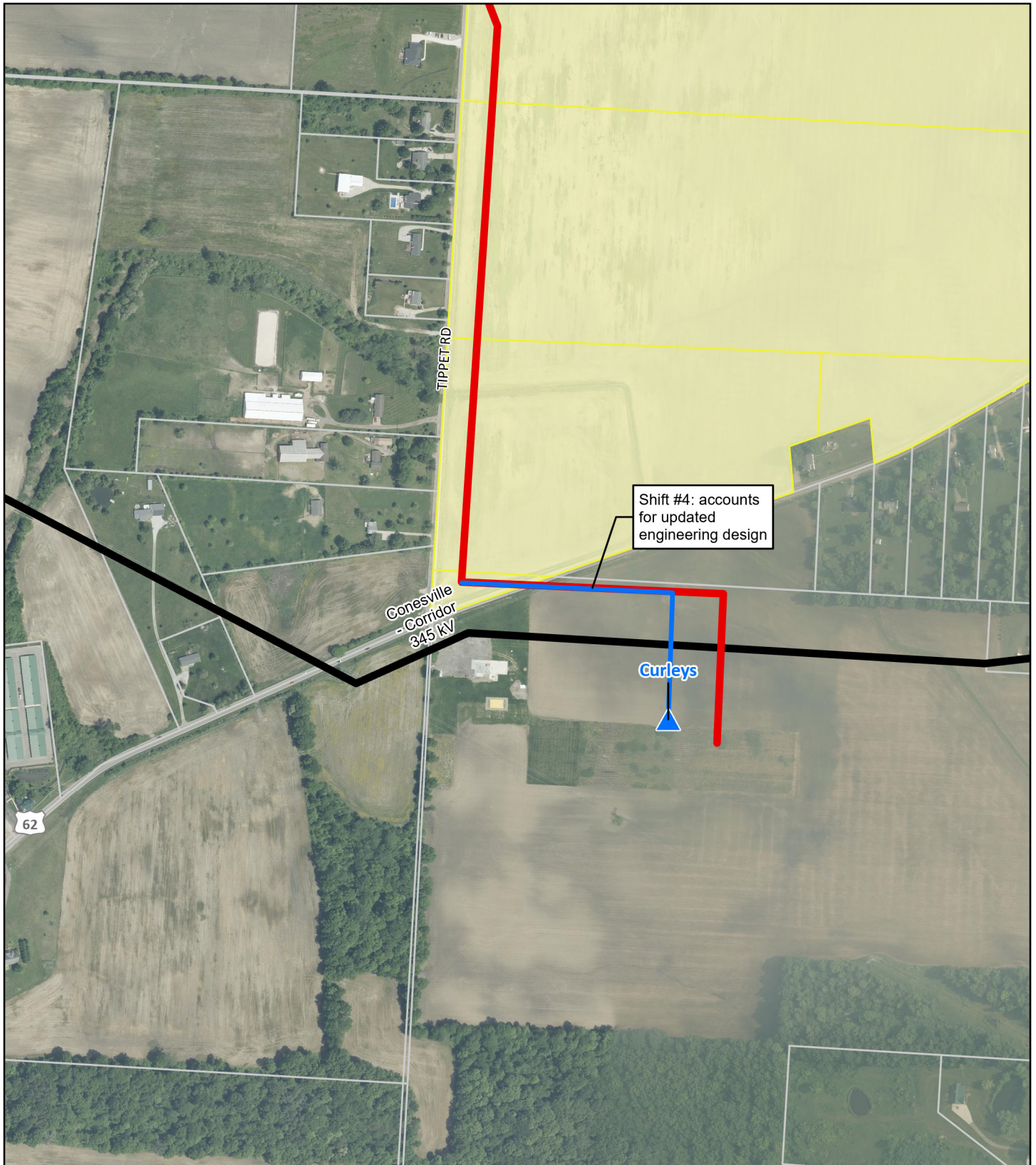
<ul style="list-style-type: none"> ▲ Existing AEP Substation — Vassell-Curleys 345kV Transmission Line (Approved Case No. 24-0792-EL-BLN) — Proposed Shifts to the Vassell-Curleys 345kV Transmission Line — Existing AEP Transmission Line □ Parcel Boundary 	<p>Sources: NAIP Imagery (USDA 2022)</p> <p>Page 1 of 4</p> <p>StatePlane Ohio North NAD 83</p> <p>March 31, 2025</p>		<p>Map 3 Aerial Map</p> <p>Vassell - Curleys 345 kV Transmission Line Adjustment #2 Project</p> <p> An AEP Company</p> <p>0 250 500 750 Feet</p>
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<p> Vassell-Curleys 345kV Transmission Line (Approved Case No. 24-0792-EL-BLN)</p> <p> Proposed Shifts to the Vassell-Curleys 345kV Transmission Line</p> <p> Agricultural District Parcel</p> <p> Parcel Boundary</p>	<p>Sources: NAIP Imagery (USDA 2022)</p> <p>Page 2 of 4</p> <p>StatePlane Ohio North NAD 83</p> <p>March 31, 2025</p> <p></p>		<p>Map 3 Aerial Map</p> <p> Vassell - Curleys 345 kV Transmission Line Adjustment #2 Project</p> <p>0 250 500 750 Feet</p>
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<div><div></div> Vassell-Curleys 345kV Transmission Line (Approved Case No. 24-0792-EL-BLN)</div> <div><div></div> Proposed Shifts to the Vassell-Curleys 345kV Transmission Line</div> <div><div></div> ODA Conservation Easement</div> <div><div></div> Agricultural District Parcel</div> <div><div></div> Parcel Boundary</div>	<div>Sources: NAIP Imagery (USDA 2022)</div> <div>Page 3 of 4</div>	<div>Map 3 Aerial Map</div> <div><div> Vassell - Curleys 345 kV Transmission Line Adjustment #2 Project</div><div><div>0250500750</div><div>Feet</div></div></div>
	<div>StatePlane Ohio North NAD 83</div> <div></div>	
	<div>March 31, 2025</div>	



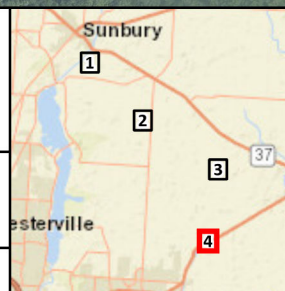
-  Proposed AEP Substation
-  Vassell-Curleys 345kV Transmission Line (Approved Case No. 24-0792-EL-BLN)
-  Proposed Shifts to the Vassell-Curleys 345kV Transmission Line
-  Existing AEP Transmission Line
-  Agricultural District Parcel
-  Parcel Boundary

Sources:
NAIP Imagery (USDA 2022)
Page 4 of 4

StatePlane
Ohio North
NAD 83



March 31, 2025



Map 3 Aerial Map



Vassell - Curleys 345 kV
Transmission Line
Adjustment #2 Project



Appendix B PJM Solution and Long Term Forecast Report

New Albany Area

- AEP is experiencing significant load growth in the New Albany area.
- As a result of the land development in this region, new easements and rights-of-way are becoming increasingly difficult and costly to obtain.
- In anticipation of this continual and future growth, AEP is planning to acquire ROW options/easements for two corridors in this area to facilitate any required future infrastructure development.





AEP Transmission Zone M-3 Process Central/NW OH, Indiana.

Process Stage: Solutions Meeting 5/9/2023, 12/5/2023

Reason for review:

In March 2023, AEP informed stakeholders of its intent to acquire ROW for two 345 kV transmission lines to New Albany in recognition of the interest AEP has received in the area. AEP is now coming back to recommend the supplemental build of these lines to address the amount of load that has signed an LOA. PJM has confirmed in its DNH analysis that these lines do not cause other issues and address the build out of the loads in the area.



AEP Transmission Zone M-3 Process Central/NW OH, Indiana.

Need Number: AEP-2022-OH023, AEP-2022-OH034, AEP-2022-OH036, AEP-2022-OH045, AEP-2022-OH046, AEP-2022-OH075, AEP-2022-OH077, AEP-2023-OH016, AEP-2023-OH019, AEP-2023-OH032, AEP-2023-OH040, AEP-2023-OH044, AEP-2023-OH052, AEP-2023-OH063

Process Stage: Solutions Meeting 5/9/2023, 12/5/2023

Proposed Solution (continued):

The following components are system reinforcements that were initially identified by AEP and later confirmed by PJM through their DNH analysis:

- **Vassell – Green Chapel 345 kV line:** Install approximately 12.5-mile long 345 kV transmission between Vassell and Green Chapel stations to mitigate overloading on multiple transmission facilities including other 345 kV transmission lines and 345-138 kV transformers. Cost: **\$75.0 M**
- **Vassell – Curleys 345 kV line:** Install approximately 12.5-mile long 345 kV transmission between Vassell and Curleys stations to mitigate overloading on multiple transmission facilities including other 345 kV transmission lines and 345-138 kV transformers. Cost: **\$75.0 M**
- **Vassell 765 & 345 kV stations:** Add 3-345 kV breakers to connect new lines to Curleys and Green Chapel. Cost: **\$10 M**
- **Green Chapel 345/138 kV station:** Install two 675 MVA, 345/138 kV transformers to connect the new Vassell – Green Chapel 345 kV line to 138 kV system and to mitigate overloading on the other 345/138 kV transformers in the system. Cost: **\$39.2 M**

System Upgrades: \$199.2 M



AEP Transmission Zone M-3 Process Central/NW OH, Indiana.

Need Number: AEP-2022-OH023, AEP-2022-OH034, AEP-2022-OH036, AEP-2022-OH045, AEP-2022-OH046, AEP-2022-OH075, AEP-2022-OH077, AEP-2023-OH016, AEP-2023-OH019, AEP-2023-OH032, AEP-2023-OH040, AEP-2023-OH044, AEP-2023-OH052, AEP-2023-OH063

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan TBD

Solution (continued):

The following components are system reinforcements that were initially identified by AEP and later confirmed by PJM through their DNH analysis:

- **Vassell – Green Chapel 345 kV line:** Install approximately 12.5-mile long 345 kV transmission between Vassell and Green Chapel stations to mitigate overloading on multiple transmission facilities including other 345 kV transmission lines and 345-138 kV transformers. Cost: **\$75.0 M (s3442.27)**
- **Vassell – Curleys 345 kV line:** Install approximately 12.5-mile long 345 kV transmission between Vassell and Curleys stations to mitigate overloading on multiple transmission facilities including other 345 kV transmission lines and 345-138 kV transformers. Cost: **\$75.0 M (s3442.28)**
- **Vassell 765 & 345 kV stations:** Add 3-345 kV breakers to connect new lines to Curleys and Green Chapel. Cost: **\$10 M (s3442.29)**
- **Green Chapel 345/138 kV station:** Install two 675 MVA, 345/138 kV transformers to connect the new Vassell – Green Chapel 345 kV line to 138 kV system and to mitigate overloading on the other 345/138 kV transformers in the system. Cost: **\$39.2 M (s3442.30)**

System Upgrades: \$199.2 M

Projected In-Service: 10/13/2027

Supplemental Project ID: s3442.1-.30

Project Status: Scoping

PUCO Form FE-T10: Ohio Transmission Company
Summary of Proposed Substations

Substation Name	Voltage(s) (kV)	Type Distribution (D) Transmission (T)	Timing	Line Association(s)	Line Existing or Proposed	Minimum Substation Site Acreage
Tarrapin (AC1-188 TP2018191)	138kV	T	2024 - 2025	Terrapin - Dixon Run 138 kV	P	Approx. 2
Red Run (AC2-015 TP2019144)	138 kV	T	2023 - 2024	Chatfield - Red Run 138 kV	P	Approx. 8
Red Run (AC2-015 TP2019144)	138kV	T	2023 - 2024	Howard - Red Run 138 kV	P	Approx. 8
Red Run (AC2-015 TP2019144)	138kV	T	2023 - 2024	Red Run - First Solar 138 kV	P	Approx. 8
Spickard (AC2-061 TP2020137)	138 kV	T	2023	Hillsboro - Spickard 138 kV	P	Approx. 8
Spickard (AC2-061 TP2020137)	138kV	T	2023	Clinton County (Duke) - Spickard 138 kV	P	Approx. 8
Spickard (AC2-061 TP2020137)	138kV	T	2023	Spickard - Dodson Creek 138 kV	P	Approx. 8
Rocky Ford (AE1-146 TP2020271)	138 kV	T	2023 - 2024	Ebersole - Rocky Ford 138 kV	P	Approx. 8
Rocky Ford (AE1-146 TP2020271)	138kV	T	2023 - 2024	Fostoria Central - Rocky Ford 138 kV	P	Approx. 8
Rocky Ford (AE1-146 TP2020271)	138kV	T	2023 - 2024	Rocky Ford - Arcadia 138 kV	P	Approx. 8
Cyprus (TP2022769)	138 / 345	T	2024	Beatty - Cyprus 345 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Bixby - Cyprus 345 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - White Road 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Canal Street - Cyprus 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - Fethers McGraw E 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - Fethers McGraw F 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - Chilly Willy C 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - Chilly Willy D 138 kV	P	Station expansion
Innovation (TP2022055)	138 / 345 kV	T	2024	Corridor - Innovation 345 kV	E	Station expansion
Innovation (TP2022055)	138 / 345 kV	T	2024	Conesville - Innovation 345 kV	E	Station expansion
Innovation (TP2022055)	138 / 345 kV	T	2024	Innovation - Mordor 138 kV #1	P	Station expansion
Innovation (TP2022055)	138 / 345 kV	T	2024	Innovation - Mordor 138 kV #2	P	Station expansion
Bermuda (TP2023011)	345 kV	T	2025 - 2026	Bermuda - innovation 345 kV	P	Approx. 6
Bermuda (TP2023011)	345 kV	T	2025 - 2026	Bermuda - Corridor 345 kV	P	Approx. 6

PUCO Form FE-T10: Ohio Transmission Company
Summary of Proposed Substations

Substation Name	Voltage(s) (kV)	Type Distribution (D) Transmission (T)	Timing	Line Association(s)	Line Existing or Proposed	Minimum Substation Site Acreage
Bermuda (TP2023011)	345 kV	T	2025 - 2026	Bermuda - Vassell 345 kV	P	Approx. 6
Bermuda (TP2023011)	345 kV	T	2025 - 2026	Bermuda -Arnor 345 kV #1	P	Approx. 6
Bermuda (TP2023011)	345 kV	T	2025 - 2026	Bermuda -Arnor 345 kV #2	P	Approx. 6
Bermuda (TP2023011)	345 kV	T	2025 - 2026	Bermuda -Arnor 345 kV #3	P	Approx. 6
Bermuda (TP2023011)	345 kV	T	2025 - 2026	Bermuda -Arnor 345 kV #4	P	Approx. 6
Curleys (TP2022958)	345 kV	T	2029	Bermuda - Curleys 345 kV #1	P	Approx. 10
Curleys (TP2022958)	345 kV	T	2029	Bermuda - Curleys 345 kV #2	P	Approx. 10
Curleys (TP2022958)	345 kV	T	2029	Corridor - Curleys 345 kV	P	Approx. 10
Curleys (TP2022958)	345 kV	T	2029	Curleys - Vassell 345 kV	P	Approx. 10
Curleys (TP2022958)	345 kV	T	2029	Curleys - Numenor 345 kV #1	P	Approx. 10
Curleys (TP2022958)	345 kV	T	2029	Curleys - Numenor 345 kV #2	P	Approx. 10
Curleys (TP2022958)	345 kV	T	2029	Curleys - Numenor 345 kV #3	P	Approx. 10
Curleys (TP2022958)	345 kV	T	2029	Curleys - Numenor 345 kV #4	P	Approx. 10

Appendix C Form Easement

Line Name: Vassell - Curleys
Line No.: TLN380:OH480
Easement No.:

EASEMENT AND RIGHT OF WAY

On this _____ day of _____, 202__, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and the covenants hereinafter set forth, _____ [landowner name and marital status] _____, whose address is _____ (“Grantor”), whether one or more persons, hereby grants, sells, conveys, and warrants to AEP Ohio Transmission Company, Inc., an Ohio corporation, a unit of American Electric Power, whose principal business address is 1 Riverside Plaza, Columbus, Ohio 43215 (“AEP”), and its successors and affiliates, a permanent easement and right of way (“Easement”) for a single electric transmission line, not to exceed 345 kV, and for internal communication purposes related to the supply of electricity (the “Transmission Line”), being, in, on, over, under, through and across the following described lands of Grantor, situated in the State of Ohio, County of _____, and Township of _____ and being a part of _____ [abbreviated legal description] _____ (“Grantor’s Property”).

Contingent provision: [Spouse of Grantor, if any] join herein for the purpose of releasing all dower rights in regard to the Easement.

Grantor claims title by _____ [name of vesting instrument] _____ dated _____ from _____ [name of first grantor] _____, recorded on _____ at _____ [record volume, page] _____ in the _____ County Recorder’s Office.

Auditor/Key/Tax Number: _____ [Tax Parcel Number] _____

The Easement Area is more fully described and depicted on Exhibit “A”, a copy of which is attached hereto and made a part hereof (“Easement Area”).

GRANTOR FURTHER GRANTS AEP THE FOLLOWING RIGHTS:

The right, now or in the future, to construct, reconstruct, operate, maintain, alter, improve, inspect,

patrol, protect, repair, remove, replace, upgrade and relocate within the Easement Area, structures and appurtenant equipment necessary for the Transmission Line.

The right, in AEP's discretion, now or in the future, to cut down, trim or remove, and otherwise control, any and all trees, overhanging branches, vegetation or brush situated within the Easement Area and any temporary access roads or temporary workspaces identified on Exhibit "A" outside the Easement Area. Provided, however, that AEP shall not use herbicides or similar products for these purposes on any portions of the Grantor's Property maintained for residential or agricultural use. AEP shall also have the right to cut down, trim or remove trees situated on Grantor's Property which adjoin the Easement Area within the Tree Protection Zone when in the reasonable opinion of AEP those trees are dead, dying, diseased, leaning, or structurally defective and may endanger the safety of, or interfere with the construction, operation or maintenance of AEP's facilities or ingress or egress to, from or along the Easement Area. The Tree Protection Zone extends eighty feet on all sides of the Easement Area depicted in Exhibit A.

AEP shall also have the right of reasonable ingress and egress over, across and upon the Easement Area only, unless additional access routes are depicted in the attached Exhibit A. Provided, however, that in the event access over, across and upon the Easement Area – and access routes, if any, shown in Exhibit A – shall become blocked or otherwise rendered unsafe or hazardous for use, AEP may temporarily access the Easement Area from other points across Grantor's Property, so long as that access is both reasonable and limited to the duration of the interference or safety hazard. AEP shall return the access area to its preexisting condition or pay damages to Grantor.

AEP shall also have the right to use temporary workspaces and temporary access roads outside the Easement Area, if any are shown on Exhibit A, in connection with its initial construction of the Transmission Line. AEP may shift the location of such temporary workspaces, if any, up to twenty (20) feet in any direction, and also shift the location of such temporary access roads, if any, up to twenty (20) feet in any direction, as field conditions or other requirements dictate. Upon completion of the overall Transmission Line project, but in no event later than two (2) years following the start of construction on Grantor's Property, AEP shall remove its equipment from all such temporary workspaces and temporary access roads outside the Easement Area, and AEP's temporary rights outside of the Easement Area shall automatically cease, terminate and revert to Grantor. AEP shall return any such areas to their preexisting condition or pay damages to Grantor as soon as practicable.

THIS GRANT IS SUBJECT TO THE FOLLOWING CONDITIONS:

Grantor reserves the right to cultivate annual crops, pasture, construct fences (provided gates are installed that adequately provide AEP the access rights conveyed herein) and roads or otherwise use Grantor's Property encumbered by this Easement in any way not inconsistent with the rights herein granted. In no event, however, shall Grantor, its heirs, successors, affiliates and assigns plant or cultivate any trees or place, construct, install, erect or permit any temporary or permanent building, structure, improvement or obstruction including but not limited to, storage tanks, billboards, signs, sheds, dumpsters, light poles, water impoundments, above ground irrigation systems, swimming pools or wells, or permit any alteration of the ground elevation, over, or within the Easement Area. AEP may, at Grantor's cost, remove any structure or obstruction if placed

within the Easement Area, and may re-grade any alterations of the ground elevation within the Easement Area.

AEP agrees to repair or pay Grantor for actual damages sustained by Grantor to crops, fences, gates, irrigation and drainage systems, drives, or lawns that are permitted herein, when such damages arise out of AEP's exercise of the rights herein granted.

Pursuant to R.C. 163.02, Grantor possesses a right of repurchase pursuant to R.C. 163.211 if AEP decides not to use Grantor's Property for the purpose stated in the appropriation petition and Grantor provides timely notice of a desire to repurchase.

This instrument contains the complete agreement, expressed or implied between the parties herein and shall inure to the benefit of and be binding on their respective successors, affiliates, heirs, executors, and administrators.

This Easement may be executed in counterparts, each of which shall be deemed an original, but all of which, taken together, shall constitute one and the same instrument.

Any remaining space on this page left intentionally blank. See next page(s) for signature(s).

IN WITNESS WHEREOF, said Grantor hereunto set their hand(s) and seal(s) as of the last date set forth below.

GRANTOR

SIGNATURE BLOCK FOR A BUSINESS ENTITY / TRUST:

[name of entity/trust & kind of business association identified]

By: _____

Print name: _____

Its Authorized Signer

State of Ohio §

§ SS:

County of _____ §

This instrument was acknowledged before me on this _____ day of _____, 202__ by _____, the _____ [title] _____ of _____ [name of entity/trust] _____, a/an _____ [state of incorporation and type of entity/trust] _____, on behalf of _____ [name of entity/trust] _____.

Notary

SIGNATURE BLOCK FOR AN INDIVIDUAL:

[Typed name of individual] _____

State of Ohio §

§ SS:

County of _____ §

This instrument was acknowledged before me on this _____ day of _____, 202__ by _____ [name of individual] _____.

Notary

This instrument prepared by Marland Turner, American Electric Power Service Corporation, 1 Riverside Plaza, Columbus, OH 43215 for and on behalf of AEP Ohio Transmission Company, Inc., a unit of American Electric Power.

When recorded return to: American Electric Power – Transmission Right of Way, 8600 Smith's Mill Road, New Albany, OH 43054.

Appendix D Agency Coordination



In reply, refer to
2023-DEL-59893

March 19, 2025

Ryan Weller
Weller & Associates, Inc.
1395 W. Fifth Ave.
Columbus, OH 43212
rweller@wellercrm.com

RE: Vassell-Curleys 345kV Greenfield Transmission Line Project, Delaware County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received March 3, 2025, regarding the proposed Vassell-Curleys 345kV Greenfield Project located in Delaware County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-4 & 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The following comments pertain to the letter report titled *Addendum 3 Cultural Resource Management Investigations for Improvements Associated with the Vassell-Curleys 345kV Greenfield Project in Delaware County, Ohio (PO 81128903; BPID P22735002; WO T10505699001)* by Ryan J. Weller (Weller & Associates, Inc. 2025). This project involves several disconnected areas to address alignment shifts outside the previously surveyed Vassell-Curleys 345kV Greenfield transmission line project in Delaware County, Ohio. These alignment shifts are located at Structure 1, Structure 23, between Structures 46-48, and between Structure 62 and Vassell Station. A literature review, visual inspection, and shovel test unit excavations were conducted during these investigations. Areas of inundation, steep slopes, and visible disturbance were noted within portions of the addendum project area. Portions of the addendum project area had been previously professionally surveyed. There were no previously documented archaeological sites within the addendum project area and no new archaeological sites were identified through these investigations. Our office agrees that no additional archaeological survey is necessary. Architectural resources identified within the Area of Potential Effect (APE) were previously addressed through another survey (McIntosh 2024). No additional resources were identified during the addendum survey.

Based on the information provided, we continue to agree that the project, as proposed, will have no adverse effect on historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional cultural resources are discovered during the implementation of this project. In such a situation, this office should be contacted. If you have any questions, please contact me by e-mail at cgullett@ohiohistory.org. Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "Catherine Gullett".

Catherine Gullett, Project Reviews Coordinator
Resource Protection and Review
State Historic Preservation Office

RPR Serial No. 1107734



Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate
Tara Paciorek, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6661
Fax: (614) 267-4764

October 13, 2023

Anna Findish
AECOM
707 Grant Street
Pittsburgh, Pennsylvania 15219

Re: 23-1066; AEP Vassell - Green Chapel North Enhancement

Project: The proposed project involves the implementation of improvements between the existing Vassell Station and a proposed station (approximately 12.4 miles).

Location: The proposed project is located in Berkshire, Trenton, and Harlem townships, Delaware County, and Monroe and Jersey townships, Licking 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: A review of the Ohio Natural Heritage Database indicates there are no records of state or federally listed plants or animals within one mile of the specified project area. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

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 portion of the project south of Duncan Plains Road is within the vicinity of records for the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species. Because presence of state endangered bat species has been established in this area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be

acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, 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 endangered 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 bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. The DOW recommends tree 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. However, if trees are present within this area, (outside of the area delineated above) 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 the DOW.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS “[RANGE-WIDE INDIANA BAT & NORTHERN LONG-EARED BAT SURVEY GUIDELINES](#).” If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza, 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 the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

This project is within the range of the following listed mussel species.

Federally Endangered

rayed bean (*Villosa fabalis*)

snuffbox (*Epioblasma triquetra*)

Federally Threatened

rabbitsfoot (*Quadrula cylindrica cylindrica*)

State Threatened

Salamander Mussel (*Simpsonaias ambigua*)

pondhorn (*Uniomus tetralasmus*)

This project must not have an impact on native mussels. This applies to both listed and non-listed species, as all species of mussel are protected in Ohio. Per the Ohio Mussel Survey Protocol (2022), 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. 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, 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](#). If there is no in-water work proposed, impacts to mussels are not likely.

The DOW recommends no in-water work in perennial streams from March 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 aquatic species.

The project is within the range of the northern harrier (*Circus hudsonius*), 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 April 15 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

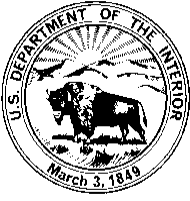
Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

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

The [local floodplain administrator](#) should be contacted concerning the possible need for any floodplain permits or approvals for this project.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994



September 11, 2023

Project Code: 2023-0125820

Dear Anna Findish:

The U.S. Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened, endangered, and proposed species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

Federally Proposed Species: On September 14, 2022, the Service proposed to list the tricolored bat (*Perimyotis subflavus*) as endangered under the ESA. The bat faces extinction due to the impacts of white-nose syndrome, a deadly disease affecting cave-dwelling bats across the continent. During spring, summer, and fall, this species roosts primarily among leaf clusters of live or recently dead trees, emerging at dusk to hunt for insects over waterways and forest edges. While white-nose syndrome is by far the most serious threat to the tricolored bat, other threats now have an increased significance due to the dramatic decline in the species' population. These threats include disturbance to bats in roosting, foraging, commuting, and over-wintering habitats. Mortality due to collision with wind turbines, especially during migration, has also been documented across their range. Conservation measures for the Indiana bat and northern long-eared bat will also help to conserve the tricolored bat.

Seasonal Tree Clearing for Federally Listed Bat Species: Should the proposed project site contain trees ≥ 3 inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, we recommend removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats.

If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats and northern long-eared bats. If Indiana bats and northern long-eared bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend 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. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or 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, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.ohio.gov.

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 that reads "Scott Hicks". The signature is written in a cursive, flowing style.

Scott Hicks
Acting Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Eileen Wyza, ODNR-DOW

Appendix E Wetland Delineation Report

VASSELL-CURLEY 345 KV TRANSMISSION LINE - ADDENDUM #3

DELAWARE, FRANKLIN, AND LICKING COUNTY, OHIO

ADDENDUM #3 ECOLOGICAL REPORT

Prepared for:

American Electric Power Ohio Transmission Company
8600 Smiths Mill Road
New Albany, Ohio 43054



Prepared by:



525 Vine Street, Suite 1900
Cincinnati, Ohio 45202

Project #: 60702698

February 2025

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APPENDIX B	OEPA Stream Data Forms and Photographic Record
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1.0 INTRODUCTION

American Electric Power, Ohio Transmission Company (AEP Ohio Transco) is proposing improvements between the existing Vassell Station and a proposed station as part of the Vassell-Curleys 345 kV Transmission Line Project (Project), which was covered in the February 2024 Original Ecological Report (AECOM, 2024a) and February 2024 - Addendum #1 Ecological Report (AECOM, 2024b). Since the February 2024 – Original Ecological Report and Addendum #1 Report, the Addendum #3 Ecological Report was completed to capture the following adjustments:

- Alignment shift at Structure 1 to adjust for tie-in to future station;
- Alignment shift at Structure 23 to address landowner concerns;
- Alignment shift between Structures 46 to 48 to address landowner concerns; and
- Alignment shift between Structure 62 to Vassel Station to avoid underground pipeline.

Addendum #2 is associated with ancillary sites and not associated with centerline or rights-of-way (ROW) adjustments.

For visual representation of these changes, the figures within this report (Figures 1-6) have included the previous study area extents, centerline, and structure adjustments associated with the February 2024 – Original Ecological Report, February 2024 Addendum #1 Ecological Report, and this Addendum #3 Ecological Report. This Addendum #3 Ecological Report includes the new features located within the new 9.36-acre Addendum #3 Project Survey Area and for ease of review/reference has provided the Original and Addendum #1 associated data forms and photographs.

The purpose of the field survey was to assess the presence of wetlands and possible “waters of the United States” (WOTUS) that occur within the proposed Project area. Secondly, land uses were also recorded to classify and characterize potential habitat for threatened and endangered species. This report will be used to assist AEP Ohio Transco’s efforts to identify potential WOTUS as well as threatened and endangered species habitat present within the proposed Project area to avoid or minimize impacts during construction activities.

2.0 METHODOLOGY

The field survey was completed for Addendum #3 Project Survey Area for a 300-foot corridor along the proposed transmission line centerline and expanded study areas for potential adjustments that were identified outside of the Original and/or Addendum #1 Project Survey Areas. The Addendum #3 Project Survey Area is approximately 9.36 acres and cumulative acreage of completed surveys including Original Report, Addendum #1, and Addendum #3 is approximately 494.47 acres. Prior to conducting field surveys, digital United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)

soil survey data, United States Fish and Wildlife Service (USFWS), National Wetlands Inventory (NWI) data, USGS National Hydrography Dataset (NHD), Federal Emergency Management Agency (FEMA) 100-year floodplain data, and USGS 7.5-minute topographic maps were reviewed to identify the occurrence and location of potential wetland areas and/or streams.

Field survey activities included recording the physical boundaries of observed water features using sub-meter capable EOS Arrow Global Positioning System (GPS) units in conjunction with the ArcGIS Field Maps application on iPad tablets. The GPS data was imported into ArcMap Geographic Information System (GIS) software, where the data was reviewed, edited for accuracy, and compiled in a format suitable for transfer and use by AEP Ohio Transco. Water features were delineated and assessed based upon the appropriate procedures detailed below. Land uses observed within the Project Survey Area were assigned a general classification based upon the principal land characteristics and vegetative cover of the location.

2.1 WETLAND DELINEATION

The Project Survey Area was evaluated according to the procedures outlined in the United States Army Corps of Engineers (USACE) *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010).

During field survey activities AECOM utilized the routine on-site delineation method described in the 1987 manual and supplement that consisted of a pedestrian site reconnaissance, including identifying the vegetative communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance. If a wetland was identified, AECOM completed a USACE Wetland Determination Data Form (USACE Data Form) within each unique wetland habitat to serve as a representative of the wetland hydrology, vegetative community, and soil characteristics. Adjacent to each wetland complex, AECOM completed an additional USACE Data Form as a representative of the upland community.

2.1.1 WETLAND CLASSIFICATION

Wetlands identified in the field were classified based on the naming convention found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al.*, 1979). The unique wetland habitats were classified as palustrine emergent (PEM), palustrine forested (PFO), palustrine unconsolidated bottom (PUB), palustrine scrub-shrub (PSS), or other classifications for some wetlands. Multiple Cowardin classifications may be present where more than one classification's vegetation is dominant (vegetation type covers 30 percent or more of the substrate). Where multiple Cowardin classifications are present, the Cowardin classification of the plants that constitute the uppermost layer of vegetation having 30% or greater coverage is used for the classification.

2.1.2 WETLAND ASSESSMENT

Each delineated wetland was assessed following the Ohio Environmental Protection Agency (OEPA) *Ohio Rapid Assessment Method for Wetlands v. 5.0* (ORAM) (Mack, 2001). Wetland assessments utilized the 10-page ORAM form, providing a final Category rating for each wetland.

2.2 STREAM ASSESSMENT

Streams were identified by the presence of a defined bed and bank, and evidence of an ordinary high-water mark (OHWM). The USACE defines the OHWM as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (USACE, 2005).

2.2.1 OEPA PRIMARY HEADWATER HABITAT ASSESSMENT

Stream assessments were conducted using the methods described in the OEPA’s *Methods for Assessing Habitat in Flowing Waters: Using OEPA’s Qualitative Habitat Evaluation Index (QHEI)* (Rankin, 2006) and in the OEPA’s *Field Methods for Evaluating Primary Headwater Streams in Ohio* (OEPA, 2020). Streams associated with watershed area less than or equal to 1.0 square mile (259 hectares), and a maximum depth of water pools equal to or less than 15.75 inches were evaluated utilizing the Headwater Habitat Evaluation Index (HHEI) methodology and all other streams assessed using the QHEI methodology. Flow regime (ephemeral, intermittent, perennial) was determined by the appropriate stream assessment score per OEPA manuals (OEPA, 2020) and by AECOM’s professional opinion.

Streams assessed in the Project Survey Area were reviewed for existing OEPA Aquatic Life Use Designations per OEPA’s Water Quality Standards (OAC Chapter 3745-1). Those without an existing use designation were assigned a provisional aquatic life use designation based upon habitat assessment results (Rankin, 1989; OEPA, 2020).

2.2.2 OEPA 401 WATER QUALITY CERTIFICATION FOR NATIONWIDE PERMIT ELIGIBILITY

The OEPA has designated each watershed in the state on based on whether it may be ineligible for coverage under the OEPA’s 401 Water Quality Certification (WQC) for Nationwide Permits (OEPA, 2017). Mapping provided by the OEPA illustrates the eligibility of streams in the area to fall under a Nationwide Permit for 401 certification or if an individual state WQC needs to be applied for. Impacts to streams within each watershed would then have eligibility for 401 WQC determined by the watershed category. The three categories are defined as:

Eligible: Streams within the watershed are eligible for coverage under the OEPA's water quality certification for the Nationwide Permits if all other general and regional special terms and conditions are met.

Ineligible: Projects affecting high quality streams and undesignated streams draining directly to high quality streams, as represented in the map, must undergo an individual 401 Water Quality Certification review process.

Possibly Eligible: Additional field screening procedures are required for streams in the watershed to determine appropriate eligibility. Projects affecting undesignated streams within those HUC12 watersheds that do not directly but eventually drain into high quality waters, might be eligible for coverage under the OEPA's 401 Water Quality Certification for Nationwide Permits depending on the results of a field screening assessment. The procedures for determining individual stream eligibility in this scenario are specified in Appendix D "Stream Eligibility Determination Process" of the OEPA Ohio State Water Quality Certification of the 2017 Nationwide Permit Reauthorization.

2.2.3 UPLAND DRAINAGE FEATURES

An upland drainage feature (UDF) is a non-jurisdictional drainage that does not meet the criteria of either a jurisdictional stream or a wetland. A UDF generally lacks an OHWM (USACE, 2005) and are equivalent to a swale or an erosional feature as described by the USACE: "generally shallow features in the landscape that may convey water across upland areas during and following storm events. Swales usually occur on nearly flat slopes and typically have grass or other low-lying vegetation throughout the swale" (USACE, 2005).

A roadside ditch may also be documented as a UDF if it meets the "not potentially jurisdictional" characterization as described in the Office of Environmental Services *Roadway Ditch Characterization Flowchart* (Ohio Department of Transportation, 2014). This would include a ditch that originates entirely within the roadway right-of-way, has a seasonal flow regime, was not constructed to drain a wetland, and does not have hydrophytic vegetation extending more than an insignificant amount beyond its original configuration.

In addition, UDF's (including swales, ditches, and other erosional features) are generally not WOTUS except in certain circumstances, such as relocated streams.

2.3 RARE, THREATENED, AND ENDANGERED SPECIES

AECOM conducted a threatened and endangered species review and general field habitat surveys within the Project Survey Area. AECOM submitted requests to the Ohio Department of Natural Resources (ODNR) Office of Real Estate – Environmental Review Section and the USFWS Ohio Ecological Services Field Office soliciting comments on the proposed Project. Agency-identified species of concern and available

species-specific information was reviewed to identify the various habitat types that listed species are known to inhabit.

AECOM field ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys as part of assessing potential impacts to threatened and endangered species. Land uses within the Project Survey Area were assigned a general classification based upon the principal land characteristics and vegetative cover as observed during the field surveys.

AECOM conducted a desktop assessment of the Project Survey Area and a quarter-mile buffer around it to identify potentially occurring winter bat hibernaculum that may be present near the Project which is in **Figure 6**. This assessment was conducted by reviewing data on mining activity and karst geology from the ODNR Division of Mineral Resources and USGS websites.

3.0 RESULTS

The ecological assessments for Addendum #3 Project Survey Area were completed on January 29, 2025, and AECOM identified one new PEM wetland (W-AGS-001) and extended one existing wetland as a PEM/PFO complex (W-MRK-021) as well as identified one new ephemeral stream (S-AGS-001) and extended two existing perennial streams (S-MRK-020 and S-MRK-022). As a cumulative of the Original Report, Addendum #1, and Addendum #3 Project Survey Areas, AECOM identified a total of 20 wetlands (seven PEM, 10 PFO, one PSS, and two PEM/PFO wetland complex), 19 streams (three ephemeral, seven intermittent and nine perennial), and two ponds. All data forms and photographic records of these wetlands, streams, and ponds are provided in **Appendices A, B, and C**, respectively.

3.1 WETLAND DELINEATION

3.1.1 PRELIMINARY SOILS EVALUATION

According to the USDA/NRCS Web Soil Survey, Delaware, Franklin, and Licking Counties have a total of six soil map units identified within the Addendum #3 Project Survey Area (USDA NRCS, 2023b). Within the overall Project Survey Area, a total of eight soil map units are mapped across these three counties. **Table 1** below provides a detailed overview of all soil series and soil map units present within the entire Project Survey Area with soil map units are highlighted “yellow” if observed within Addendum #3 Project Soil Area. Soil map units located in the Project Survey Area and vicinity are shown on **Figure 2**.

TABLE 1: SOIL MAP UNITS AND DESCRIPTIONS WITHIN THE PROJECT SURVEY AREA

Soil Series	Map Unit Symbol	Map Unit Description	Topographic Setting	Hydric	Hydric Component (%)
Delaware County					
Bennington	BeA	Bennington silt loam, 0 to 2 percent slopes	Ground moraines, end moraines	No	Condit 5% Pewamo 3%
	BeB	Bennington silt loam, 2 to 6 percent slopes	End moraines, ground moraines	No	Condit 3% Pewamo 3%
Centerburg	Cen1B1	Centerburg silt loam, 2 to 6 percent slopes	Ground moraines, end moraines	No	Condit 4% Marengo 3%
	Cen1C2	Centerburg silt loam, 6 to 12 percent slopes, eroded	End moraines, ground moraines	No	Condit 4%
Condit	CnA	Condit silt loam, 0 to 1 percent slopes	End moraines, ground moraines	Yes*	Pewamo 3% Condit, fine-loamy 3%
Pewamo	PwA	Pewamo silty clay loam, 0 to 1 percent slopes	Drainageways on till plains, depressions on till plains	Yes*	Minster 6%
Sloan	SnA	Sloan silt loam, till substratum, 0 to 2 percent slopes, occasionally flooded	Flats on flood plains, backswamps on flood plains, abandoned channels on flood plains	Yes*	Pewamo 5% Millgrove 5%
Smothers	SsA	Smothers silt loam, 0 to 2 percent slopes	Ground moraines	No	Pewamo 5%
Franklin County					
Bennington	BeA	Bennington silt loam, 0 to 2 percent slopes	Ground moraines, end moraines	No	Condit 5% Pewamo 3%
	BeB	Bennington silt loam, 2 to 6 percent slopes	End moraines, ground moraines	No	Condit 3% Pewamo 3%
Pewamo	Pm	Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes	Drainageways, depressions	Yes*	Condit 9%
Licking County					
Bennington	BeA	Bennington silt loam, 0 to 2 percent slopes	Ground moraines, end moraines	No	Condit 5% Pewamo, low carbonate till 3%
	BeB	Bennington silt loam, 2 to 6 percent slopes	End moraines, ground moraines	No	Pewamo 3% Condit 3%

Soil Series	Map Unit Symbol	Map Unit Description	Topographic Setting	Hydric	Hydric Component (%)
Centerburg	Cen1B1	Centerburg silt loam, 2 to 6 percent slopes	Ground moraines, end moraines	No	Condit 4% Marengo 3%
Pewamo	Pe	Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes	Drainageways, depressions	Yes*	Condit 9%

Yes* = Hydric inclusion present

NOTE: Soils series highlighted yellow are soils map units located within Addendum #3 Project Survey Area.

3.1.2 NATIONAL WETLANDS INVENTORY MAP REVIEW

According to NWI data covering the Project location, the Addendum #3 Project Survey Area does not contain any NWI mapped wetlands. The locations of the NWI mapped wetlands in the Project vicinity are shown on **Figure 2**. A summary of the NWI mapped wetlands occurring within the entire Project Survey Area and the associated field identified resources are presented in **Table 2**.

TABLE 2: NWI DISPOSITION SUMMARY TABLE WITHIN THE PROJECT SURVEY AREA

NWI Code	NWI Description	Related Field Inventoried Resource (Wetland ID/Stream ID)	Comments
PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded	W-MRK-019	NWI mapped was field verified as an upland field and actual boundary of wetland identified as W-MRK-019.
PFO1C	Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded	W-MRK-017	Feature was verified as PFO wetland.
PFO1C	Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded	W-MRK-030	Feature was verified as PEM/FO wetland.
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	W-MRK-030	Feature was verified as PEM/FO wetland.
PSS1C	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded	W-MRK-030	Feature was verified as PEM/FO wetland.
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	P-MRK-002	Feature was field verified as a pond.
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	W-MRK-027	Feature was field verified as a PEM wetland.
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	N/A	Feature was field verified as absent within upland agricultural field.
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	S-MRK-025	Feature was verified as a delineated stream.
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	S-MRK-020	Feature was verified as a delineated stream.
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	S-MRK-026 and S-MRK-027	Feature was verified as a delineated stream.
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	S-MRK-005	Feature was verified as a delineated stream.

NWI Code	NWI Description	Related Field Inventoried Resource (Wetland ID/Stream ID)	Comments
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	S-MRK-013	Feature was verified as a delineated stream.
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	S-MRK-012	Feature was verified as a delineated stream.
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	S-MRK-011 and S-MRK-028	Feature was verified as a delineated stream.
R5UBH	Riverine, Perennial, Unconsolidated Bottom, Streambed, Permanently Flooded	S-MRK-018	Feature was verified as a delineated stream.

3.1.3 DELINEATED WETLANDS

During the field survey, one new PEM wetland (W-AGS-001) and one existing PFO wetland was extended and reclassified as a PEM/PFO wetland complex (W-MRK-021) within the Addendum #3 Project Survey Area. The new wetland was assigned a ORAM Category 2 and no changes in score occurred for the previously access wetland (W-MRK-021) and remained a ORAM Category 2. For W-AGS-001, the wetland was assigned a ORAM Category 1.

In summary of the entire Project Survey Area (Original, Addendum #1, and Addendum #3), a total of 20 wetlands were identified. Of these 20 wetlands identified, ten were PFO, seven were PEM, one was PSS, and two were a PEM/PFO wetland complex. Eleven wetlands were assigned ORAM Category 1 and nine were assigned as ORAM Category 2 wetlands. No Category 3 wetlands were identified within the Project Survey Area. A summary of the delineated features is provided in **Table 3**. The AECOM delineation boundaries are provided on **Figure 3**.

Due to new features being identified since the Original and Addendum #3 reports, AECOM has adjusted **Table 3** with changes reflected as “yellow” highlights. The completed USACE data forms and photographs of each wetland are provided in **Appendix A**.

TABLE 3: SUMMARY OF DELIENATED WETLANDS WITHIN THE PROJECT SURVEY AREA

Wetland ID	Location		Isolated ?	Habitat Type	Delineated Area (acre)	ORAM		Nearest Structure # (Existing / Proposed)	Existing Structure # in Wetland	Proposed Structure # in Wetland	Structure Installation Method	Proposed Impacts	
	Latitude	Longitude				Score	Category					Temporary Matting Area (acre)	Permanent Impact Area (acre)
W-MRK-004	40.14816	-82.74864	Yes	PFO	0.37	35	2	15	None	None	N/A	TBD	TBD
W-MRK-009	40.18984	-82.79656	No	PFO	0.35	29	1	42	None	None	N/A	TBD	TBD
W-MRK-010	40.19047	-82.79650	No	PEM	0.06	21	1	42	None	None	N/A	TBD	TBD
W-MRK-017	40.14042	-82.74910	Yes	PFO	0.15	35	2	12	None	None	N/A	TBD	TBD
W-MRK-018	40.14013	-82.74965	No	PFO	0.09	27	1	12	None	None	N/A	TBD	TBD
W-MRK-019	40.13378	-82.75477	Yes	PEM	1.16	18	1	9	None	None	N/A	TBD	TBD
W-MRK-021	40.22391	-82.85472	No	PFO	0.58	42	2	63	None	None	N/A	TBD	TBD
	40.22378	-82.85563		PEM	0.29				None	None	N/A	TBD	TBD
W-MRK-023	40.21723	-82.84852	No	PEM	2.67	23	1	60	None	None	N/A	TBD	TBD
W-MRK-024	40.21279	-82.84142	No	PSS	1.40	16	1	57	None	None	N/A	TBD	TBD
W-MRK-025	40.19767	-82.81806	No	PFO	0.17	30	2	49	None	None	N/A	TBD	TBD
W-MRK-027	40.17381	-82.79446	Yes	PEM	0.53	21	1	37	None	None	N/A	TBD	TBD
W-MRK-028	40.17378	-82.78747	No	PFO	1.56	42	2	35	None	None	N/A	TBD	TBD
W-MRK-029	40.17388	-82.78568	No	PFO	1.07	42	2	35	None	None	N/A	TBD	TBD
W-MRK-030	40.16174	-82.74871	Yes	PEM	4.89	45	2	21	None	None	N/A	TBD	TBD
	40.16163	-82.74894		PFO	8.92				None	None	N/A	TBD	TBD
W-MRK-031	40.14055	-82.74988	No	PFO	0.08	30	2	12	None	None	N/A	TBD	TBD
W-MRK-032	40.13307	-82.75424	Yes	PEM	0.08	14	1	9	None	None	N/A	TBD	TBD
W-MRK-033	40.12324	-82.76209	No	PEM	0.02	19	1	3	None	None	N/A	TBD	TBD
W-MRK-037	40.18247	-82.79458	Yes	PFO	0.12	31	2	39	None	None	N/A	TBD	TBD
W-MRK-038	40.17420	-82.77283	No	PFO	0.78	27	1	31	None	None	N/A	TBD	TBD
W-AGS-001	40.22515	-82.85411	No	PEM	0.02	22	1	63	None	None	N/A	TBD	TBD
P-MRK-001	40.13314	-82.75506	No	-	0.08	N/A	N/A	9	None	None	N/A	TBD	TBD
P-MRK-002	40.22639	-82.85423	No	-	0.52	N/A	N/A	64	None	None	N/A	TBD	TBD
Total:					25.96							TBD	TBD

Note: Attributes highlighted as "Yellow" within the table above illustrate the changes since the February 2024 – Original Repot and Addendum #1. The changes identified are the renumbering of structures.

3.2 STREAM DELINATION

During the field survey, one new ephemeral stream (S-AGS-001) was identified, and two existing perennial streams (S-MRK-020 and S-MRK-022) were extended within the Addendum #3 Project Survey Area. The new stream was classified with HHEI methodology as Class I PHW (Score 13) and the two extended streams didn't have a change of score since the original assessment.

In summary of the entire Project Survey Area, a total 19 streams (nine perennial, seven intermittent, and three ephemeral) were identified within the Project Survey Area. Of these 19 streams, 14 were classified with HHEI methodology (four Class I PHW and 10 Class II PHW), four were classified with QHEI methodology, and one stream had an existing use designation under Chapter 3745-1 as a Warmwater Habitat. Each stream identified in the Project Survey Area is displayed on **Figure 2**. The completed data forms and photographs are provided in **Appendix B**.

AECOM has provided a provisional determination that all delineated streams, except ephemeral streams, within the Project Survey Area appears to be jurisdictional (i.e, WOTUS), based on their observed or presumed confluence with downstream waters. Final jurisdictional status can only be determined by the USACE, and any AECOM assessments are provisional. A summary of the delineated features is provided in **Table 4**. Due to changes since the Original, Addendum #1, and Addendum #3 Reports, AECOM has highlighted the changes of **Table 4** as "yellow".

TABLE 4: SUMMARY OF DELIENATED STREAMS WITHIN THE PROJECT SURVEY AREA

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation			Fill Type	Area (acre)
S-MRK-005	40.152913	-82.748472	Perennial	UNT to Duncan Run	356	16	9	QHEI	44	Fair	Eligible	TBD	TBD	TBD
S-MRK-010	40.123051	-82.761323	Perennial	UNT to Blacklick Creek	318	7	4	HHEI	47	Class II PHW	Eligible	TBD	TBD	TBD
S-MRK-011	40.202097	-82.823271	Perennial	UNT to Big Walnut Creek	344	13	9	QHEI	42	Poor	Eligible	TBD	TBD	TBD
S-MRK-012	40.189335	-82.796647	Perennial	UNT to Big Walnut Creek	328	13	8.5	QHEI	47.5	Fair	Eligible	TBD	TBD	TBD
S-MRK-013	40.173518	-82.776552	Perennial	UNT to Duncan Run	318	16	5	HHEI	56	Class II PHW	Eligible	TBD	TBD	TBD
S-MRK-018	40.136214	-82.748887	Perennial	Duncan Run	841	15	6	Chapter 3745-1	N/A	Warmwater Habitat	Eligible	TBD	TBD	TBD
S-MRK-020	40.224050	-82.853620	Perennial	UNT to Prairie Run	957	14	3	HHEI	60	Class II PHW	Eligible	TBD	TBD	TBD
S-MRK-021	40.225220	-82.853530	Ephemeral	UNT to Prairie Run	325	3.5	1.5	HHEI	24	Class I PHW	Eligible	TBD	TBD	TBD
S-MRK-022	40.226050	-82.853530	Perennial	UNT to Prairie Run	634	9	7	HHEI	42	Class II PHW	Eligible	TBD	TBD	TBD
S-MRK-024	40.217340	-82.848540	Intermittent	UNT to Prairie Run	380	3	3.5	HHEI	28	Class I PHW	Eligible	TBD	TBD	TBD
S-MRK-025	40.216800	-82.847870	Intermittent	UNT to Prairie Run	844	3	7	HHEI	41	Class II PHW	Eligible	TBD	TBD	TBD
S-MRK-026	40.212550	-82.840120	Perennial	UNT to Big Walnut Creek	630	4.5	2	QHEI	54	Warmwater Habitat - Good	Eligible	TBD	TBD	TBD
S-MRK-027	40.212300	-82.839510	Ephemeral	UNT to Big Walnut Creek	494	2.5	1.5	HHEI	28	Class I PHW	Eligible	TBD	TBD	TBD
S-MRK-028	40.196960	-82.817160	Intermittent	UNT to Big Walnut Creek	158	4	5.5	HHEI	45	Class II PHW	Eligible	TBD	TBD	TBD
S-MRK-029	40.196060	-82.816130	Intermittent	UNT to Big Walnut Creek	951	13	13	HHEI	56	Class II PHW	Eligible	TBD	TBD	TBD
S-MRK-030	40.123020	-82.761980	Intermittent	UNT to Blacklick Creek	76	3.5	7	HHEI	52	Class II PHW	Eligible	TBD	TBD	TBD
S-MRK-032	40.196690	-82.817468	Intermittent	UNT to Big Walnut Creek	82	3.5	1.5	HHEI	30	Class II PHW	Eligible	TBD	TBD	TBD
S-MRK-033	40.19761	-82.81884	Intermittent	UNT to Blacklick Creek	200	6	3	HHEI	54	Class II PHW	Eligible	TBD	TBD	TBD
S-AGS-001	40.22646	-82.85285	Ephemeral	UNT to Prairie Run	21	2	3	HHEI	13	Class I PHW	Eligible	TBD	TBD	TBD
Total:					8,257									0

Note:

Attributes highlighted as "Yellow" within the table above illustrate the changes since the February 2024 – Original Repot and Addendum #1. The changes identified are the addition of stream features and the extension of existing streams.

3.2.1 OEPA STREAM ELIGIBILITY

OEPA stream eligibility for 401 WQC mapping was reviewed for the Addendum#3 Project Survey Area with all the previously identified watersheds within portions of the Addendum#3 Project Survey Area.

Of these four watersheds crossed by the Project area, one designated by 401 WQC eligibility as “possibly eligible” and three designated as “eligible”, as listed in **Table 5**. The OEPA stream eligibility mapping for the Project Survey Area is provided on **Figure 4**.

TABLE 5: SUMMARY OF WATERSHED 401 WQC ELIGIBILITY WITHIN THE PROJECT SURVEY AREA

HUC-12	Watershed	401 WQC Eligibility	Number of Stream Assessments
050600011503	Prairie Run-Big Walnut Creek	Eligible	6
050600011308	Hoover Reservoir-Big Walnut Creek	Eligible	7
050600011307	Duncan Run	Eligible	3
050600011503	Headwaters Blacklick Creek	Possibly Eligible	3
Total			19

3.3 FEMA 100 YEAR FLOODPLAINS

No mapped FEMA designated 100-year floodplains and/or floodways are identified within the Addendum #3 Project Survey Area. Across the entire Project area, no FEMA regulated floodways are located within the Project Survey Area; however, 100-year mapped floodplains are located between Structures 50 to 51, 47 to 49, and 11 to 12 as shown on **Figure 2** (FEMA, 2009, 2023).

3.4 PONDS

No ponds were identified within the Addendum #3 Project Survey Area. In the entire Project Survey Area, a total of two ponds were identified. The first pond (P-MRK-001) was a recreational or residential constructed pond and the second (P-MRK-002) was a stormwater basin. The USACE data forms are provided in **Appendix A** and the pond photographic log is provided in **Appendix C**.

3.5 UPLAND DRAINAGE FEATURES AND PONDS

A total of one upland drainage feature (UDF) was identified within the Addendum #3 Project Survey Area. In the entire Project survey area, a total of 13 UDFs were identified features are displayed on **Figures 2 and 3**. Photographs of all delineated upland drainage features are provided in **Appendix D**.

3.6 VEGETATIVE COMMUNITIES

AECOM ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys. As verified during the Addendum #3 Project Survey Area, the additional areas reviewed are composed of Landscaped, Agriculture Row-Crop, Urban, Stream/Wetlands, Woodland, and Old Field habitats.

Within the overall Project Survey Area as shown in **Table 6**, the Project areas contained Agriculture Row-Crop, Woodlands, Pasture/Hay Fields, Streams/Wetlands/Ponds, Urban, Old Field, and Landscaped Areas. Habitat descriptions applicable to the entire Project and those within Addendum #3 are provided below. Vegetative communities are depicted visually on aerial photography in **Figure 5**. Representative photographs of the vegetative communities in the entire Project Survey Area are provided as **Appendix E**.

TABLE 6: VEGETATIVE COMMUNITIES WITHIN PROJECT SURVEY AREA

Vegetative Community	Description	Approximate Acreage within Addendum #3 Project Survey Area	Approximate Acreage Within the Entire Project Survey Area	Approximate Percentage Within the Entire Project Survey Area
Agriculture Row-Crop	Agricultural lands being utilized for row-crop production and associated activities, typically devoid of vegetation outside of the target crop and opportunistic/invasive species.	4.69	391.04	79.08%
Landscaped Areas	Landscaped areas, including residential properties and commercial properties, were observed within the Project vicinity. These landscaped areas within the Project Survey Area and adjacent areas are frequently mowed grasses and forbs.	0.07	3.40	0.69%
Old Field	Herbaceous cover exists alongside roads, field borders, and abandoned fields within the Survey Area of the Project in the form of successional old-field communities. These communities are the earliest stages of recolonization by plants following disturbance. This community type is typically short-lived, giving way progressively to shrub and forest communities unless periodically re-disturbed, in which case they remain as old fields. The old-field areas within the study corridors and adjacent areas are infrequently mowed areas of grasses, forbs, and occasional shrubs.	1.32	7.03	1.42%
Pasture/Hay Fields	Cattle and/or horse pasture, and hay fields, dominated by seasonally mowed and grazed areas of grasses and forbs.	0	14.32	2.9%
Streams/Wetlands/Ponds	Streams, ponds, and wetlands were observed both within and beyond the survey area for the Project.	0.32	14.92	3.02%
Urban	Urban areas are areas developed with residential and commercial land uses, including roads, buildings and parking lots. These areas are generally devoid of significant woody and herbaceous vegetation.	0.26	10.75	2.17%

Vegetative Community	Description	Approximate Acreage within Addendum #3 Project Survey Area	Approximate Acreage Within the Entire Project Survey Area	Approximate Percentage Within the Entire Project Survey Area
Woodlands (Mixed-Deciduous)	Woodlands (floodplain, upland, succession maple-mixed, etc) are present along the Project Survey Area. Woody species dominating these areas included Box elder (<i>Fraxinus pennsylvanica</i>), and Red maple (<i>Acer rubrum</i>)	2.70	53.01	10.72%
Totals:		9.36	494.47	100%

3.7 RARE, THREATENED AND ENDANGERED SPECIES AGENCY COORDINATION

Protected Species Agency Consultation –

Initial coordination letters to the United States Fish and Wildlife Service (USFWS) and the Ohio Department of Natural Resources (ODNR) were sent on September 8, 2023, and responses were received on September 11, 2023 (USFWS) and October 13, 2023 (ODNR). Copies of the received USFWS and ODNR agency correspondence has been provided as **Appendix F**. As responses received from these agencies are within two years of this addendum report and adjustments within 0.25-miles of original request review, these findings are still applicable to Addendum #3 Project Survey Areas.

Regarding state and federal listed threatened and endangered species that may occur within the Project vicinity, a total of three species were identified by the USFWS and ten species were identified by the ODNR.

Based on the review of these species in reference to Addendum #3 Project Survey Area as well as the entire Project survey area, it is not anticipated that the Project would adversely affect any of the species or their habitats as identified within **Table 7**. Photographs of the habitat within the Project Area are provided as **Appendix E**

Since the Original Report and Addendum #3 report, a revised joint guidance between ODNR DOW and USFWS for Bat Surveys and Tree Clearing was released in May 2024 and a copy has been provided as **Appendix G**. No changes between the 2023 and 2024 guidance resulted in change of determination of “no effect” for this Project due to absence of hibernacula within 0.25-miles of the Project area.

TABLE 7: ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT SURVEY AREA

Common Name (Scientific Name)	State Status	Federal Status	Typical Habitat	Habitat Observed	Avoidance Dates	Agency Comments	Potential Impacts
Mammals							
Indiana Bat (<i>Myotis sodalis</i>)	Endangered	Endangered	<u>Summer habitat</u> During spring/summer, this bat species roosts in trees behind loose, exfoliating bark, in crevices and cavities, or in leaves. <u>Hibernaculum(a)</u> During winter, this species hibernates in humid mines, caves, and occasionally man-made structures.	<u>Summer habitat</u> Within the Project Survey Area forested woodlots will be impacted by the project that contain suitable roosting trees. <u>Hibernaculum(a)</u> No mine openings and/or known caves are located within 0.25 miles of Project area and USFWS did not identify known hibernacula within 5-miles of the Project. However, one surface mine operation and multiple karst features were identified within the Project area, which do not provide suitable hibernacula for the species. Field evaluations did not identify any potential hibernaculum(a) within the Project area (2024 Joint Guidance)*.	April 1 – September 30	<u>Summer habitat</u> ODNR and USFWS recommends adherence to Avoidance Dates for Tree Clearing Activities (April 1 – September 30). <u>Hibernaculum(a)</u> The ODNR DOW recommends a desktop habitat assessment to be conducted to identify potential hibernacula within 0.25 miles of the Project area. If habitat assessment finds potential hibernaculum within 0.25 miles, a revised seasonal tree clearing restriction (March 15 to November 15) is recommended (2024 Joint Guidance)*. If absence or no tree cutting or subsurface impacts are proposed, the Project is not likely to impact this species.	<u>Summer habitat</u> Potential summer roosting habitat is present within the Project area and seasonal tree clearing, between October 1 and March 31, is recommended. <u>Hibernaculum(a)</u> A surface industrials mineral mine operation and multiple karst features were identified within 0.25 miles of the Project survey area. However, no impacts to winter hibernacula were identified as these do not indicate areas which are anticipated to provide suitable hibernacula for cave-dwelling bats. As per ODNR and USFWS guidance, further coordination regarding potential hibernaculum is only necessary if the habitat assessment find potential habitat within 0.25-mile of the Project survey area.
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Endangered	Endangered	<u>Summer habitat</u> During spring/summer, this bat species roosts in trees behind loose, exfoliating bark, in crevices and cavities, or in leaves. <u>Hibernaculum(a)</u> During winter, this species hibernates in humid mines, caves, and occasionally man-made structures.	<u>Summer habitat</u> Within the Project Survey Area forested woodlots will be impacted by the project that contain suitable roosting trees. <u>Hibernaculum(a)</u> No mine openings and/or known caves are located within 0.25 miles of Project area and USFWS did not identify known hibernacula within 5-miles of the Project. However, one surface mine operation and multiple karst features were identified within the Project area, which do not provide suitable hibernacula for the species. Field evaluations did not identify any potential hibernaculum(a) within the Project area (2024 Joint Guidance)*.	April 1 – September 30	<u>Summer habitat</u> ODNR and USFWS recommends adherence to Avoidance Dates for Tree Clearing Activities (April 1 – September 30). Additionally, the ODNR indicated that there is a known presence of this species within the Project area and summer surveys would not constitute a presence or absence of this species. <u>Hibernaculum(a)</u> The ODNR DOW recommends a desktop habitat assessment to be conducted to identify potential hibernacula within 0.25 miles of the Project area. If habitat assessment finds potential hibernaculum within 0.25 miles, a revised seasonal tree clearing restriction (March 15 to November 15) is recommended (2024 Joint Guidance)*. If absence or no tree cutting or subsurface impacts are proposed, the Project is not likely to impact this species.	<u>Summer habitat</u> Potential summer roosting habitat is present within the Project area and seasonal tree clearing, between October 1 and March 31, is recommended. Additional summer surveys would not constitute presence/absence within the Project area for the Northern long eared bat. <u>Hibernaculum(a)</u> A surface industrials mineral mine operation and multiple karst features were identified within 0.25 miles of the Project survey area. However, no impacts to winter hibernacula were identified as these do not indicate areas which are anticipated to provide suitable hibernacula for cave-dwelling bats. As per ODNR and USFWS guidance, further coordination regarding potential hibernaculum is only necessary if the habitat assessment find potential habitat within 0.25-mile of the Project survey area.
Little brown bat (<i>Myotis lucifugus</i>)	Endangered	NA	<u>Summer habitat</u> During spring/summer, this bat species roosts in trees behind loose, exfoliating bark, in crevices and cavities, or in leaves. <u>Hibernaculum(a)</u> During winter, this species hibernates in humid mines, caves, and occasionally man-made structures.	<u>Summer habitat</u> Within the Project Survey Area forested woodlots will be impacted by the project that contain suitable roosting trees. <u>Hibernaculum(a)</u> No mine openings and/or known caves are located within 0.25 miles of Project area and USFWS did not identify known hibernacula within 5-miles of the Project. However, one surface mine operation and multiple karst features were identified within the Project area, which do not provide suitable hibernacula for the species. Field evaluations did not identify any potential hibernaculum(a) within the Project area (2024 Joint Guidance)*.	April 1 – September 30	<u>Summer habitat</u> ODNR and USFWS recommends adherence to Avoidance Dates for Tree Clearing Activities (April 1 – September 30). <u>Hibernaculum(a)</u> The ODNR DOW recommends a desktop habitat assessment to be conducted to identify potential hibernacula within 0.25 miles of the Project area. If habitat assessment finds potential hibernaculum within 0.25 miles, a revised seasonal tree clearing restriction (March 15 to November 15) is recommended (2024 Joint Guidance)*. If absence or no tree cutting or subsurface impacts are proposed, the Project is not likely to impact this species.	<u>Summer habitat</u> Potential summer roosting habitat is present within the Project area and seasonal tree clearing, between October 1 and March 31, is recommended. <u>Hibernaculum(a)</u> A surface industrials mineral mine operation and multiple karst features were identified within 0.25 miles of the Project survey area. However, no impacts to winter hibernacula were identified as these do not indicate areas which are anticipated to provide suitable hibernacula for cave-dwelling bats. As per ODNR and USFWS guidance, further coordination regarding potential hibernaculum is only necessary if the habitat assessment find potential habitat within 0.25-mile of the Project survey area.

Common Name (Scientific Name)	State Status	Federal Status	Typical Habitat	Habitat Observed	Avoidance Dates	Agency Comments	Potential Impacts
Tricolored bat (<i>Perimyotis subflavus</i>)	Endangered	Proposed	<u>Summer habitat</u> During spring/summer, this bat species roosts in trees behind loose, exfoliating bark, in crevices and cavities, or in leaves. <u>Hibernaculum(a)</u> During winter, this species hibernates in humid mines, caves, and occasionally man-made structures.	<u>Summer habitat</u> Within the Project Survey Area forested woodlots will be impacted by the project that contain suitable roosting trees. <u>Hibernaculum(a)</u> No mine openings and/or known caves are located within 0.25 miles of Project area and USFWS did not identify known hibernacula within 5-miles of the Project. However, one surface mine operation and multiple karst features were identified within the Project area, which do not provide suitable hibernacula for the species. Field evaluations did not identify any potential hibernaculum(a) within the Project area (2024 Joint Guidance) *.	April 1 – September 30	<u>Summer habitat</u> ODNR and USFWS recommends adherence to Avoidance Dates for Tree Clearing Activities (April 1 – September 30). <u>Hibernaculum(a)</u> The ODNR DOW recommends a desktop habitat assessment to be conducted to identify potential hibernacula within 0.25 miles of the Project area. If habitat assessment finds potential hibernaculum within 0.25 miles, a revised seasonal tree clearing restriction (March 15 to November 15) is recommended (2024 Joint Guidance) *. If absence or no tree cutting or subsurface impacts are proposed, the Project is not likely to impact this species.	<u>Summer habitat</u> Potential summer roosting habitat is present within the Project area and seasonal tree clearing, between October 1 and March 31, is recommended. <u>Hibernaculum(a)</u> A surface industrials mineral mine operation and multiple karst features were identified within 0.25 miles of the Project Survey Area. However, no impacts to winter hibernacula were identified as these do not indicate areas which are anticipated to provide suitable hibernacula for cave-dwelling bats. As per ODNR and USFWS guidance, further coordination regarding potential hibernaculum is only necessary if the habitat assessment find potential habitat within 0.25-mile of the Project Survey Area.
Mussels							
Pondhorn (<i>Unio merus tetralasmus</i>)	Threatened	None	Perennial Streams	Perennial streams present.	March 15 through June 30	The DOW recommends no in-water work in perennial streams from March 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 aquatic species.	No in-stream work is anticipated to be required for the Project. If in-stream activity is required to occur between the OHWM, further coordination with the ODNR and USFWS is warranted.
Rabbitsfoot (<i>Quadrula cylindrica cylindrica</i>)	Threatened	Threatened	Perennial Streams	Perennial streams present.	March 15 through June 30	The DOW recommends no in-water work in perennial streams from March 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 aquatic species.	No in-stream work is anticipated to be required for the Project. If in-stream activity is required to occur between the OHWM, further coordination with the ODNR and USFWS is warranted.
Rayed bean (<i>Villosa fabalis</i>)	Endangered	Endangered	Perennial Streams	Perennial streams present.	March 15 through June 30	The DOW recommends no in-water work in perennial streams from March 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 aquatic species.	No in-stream work is anticipated to be required for the Project. If in-stream activity is required to occur between the OHWM, further coordination with the ODNR and USFWS is warranted.
Salamander mussel (<i>Simpsonaias ambigua</i>)	Threatened	None	Perennial Streams	Perennial streams present.	March 15 through June 30	The DOW recommends no in-water work in perennial streams from March 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 aquatic species.	No in-stream work is anticipated to be required for the Project. If in-stream activity is required to occur between the OHWM, further coordination with the ODNR and USFWS is warranted.
Snuffbox (<i>Epioblasma triquetra</i>)	Endangered	Endangered	Perennial Streams	Perennial streams present.	March 15 through June 30	The DOW recommends no in-water work in perennial streams from March 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 aquatic species.	No in-stream work is anticipated to be required for the Project. If in-stream activity is required to occur between the OHWM, further coordination with the ODNR and USFWS is warranted.
Birds							
Northern harrier (<i>Circus hudsonius</i>)	Endangered	None	This species hunts over grasslands and nests can be found in large marshes and grasslands.	Two old field and/or pasture/hay fields > 2 acres in size were identified within the Project Survey Area.	April 15 to July 31	Habitat should be avoided during the bird's nesting period between April 15 through July 31. If habitat will not be impacted, this Project will not likely impact species.	No, the two old field habitats identified within the Project Survey Area are affected by "Edge Effect", adjacent residential disturbances, and/or utilized as hayfields that would not make these areas suitable habitat for this species.

*2024 Joint Guidance – Refers to the 2024 ODNR DOW and USFWS Joint Guidance for Bat Surveys and Tree Clearing, a copy of the guidance is provided within this report.

Protected Species Agency Summary

Based on general observations during the ecological field survey, forested clearing is anticipated as there is occurrence of forested habitat within the Project Survey Area (Original Report, Addendum #1, and Addendum #3) and tree clearing is proposed as part of the Project. The ODNR and the USFWS recommend implementations of seasonal tree clearing between October 1 and March 31 to avoid adverse effects to Indiana bat, northern long-eared bat, little brown bat, and tricolored bat. ODNR confirmed a known presence in the vicinity of the Project area for the northern long-eared bat. If trees must be cut during the summer months, the ODNR recommends that a mist net survey could be completed for the Indiana bat, little brown bat, and the tricolored bat between June 1 and August 15. However, additional summer surveys would not constitute presence/absence within the Project Survey Area for the northern long-eared bat. If summer tree clearing is needed, additional coordination would be completed with ODNR and the USFWS.

AECOM completed a desktop review for potential hibernaculum in accordance with the 2024 Ohio ODNR DOW and USFWS Joint Guidance for Bat Surveys and Tree Clearing within 0.25-miles of the Project survey area (**Appendix G**). No caves were identified within a 0.25-miles radius of the Project Area that are anticipated to provide suitable hibernacula for cave-dwelling bats. However, a surface industrial mineral mine operation and multiple karst features were within 0.25-mile of the Project Survey Area (Original Report and Addendum #3) (**Figure 6**). Based on the available desktop resources, the karst and surface mines do not indicate areas which are anticipated to provide suitable hibernacula for cave-dwelling bats. As per ODNR and USFWS guidance, further coordination regarding potential hibernaculum is only necessary if the habitat assessment find potential habitat within 0.25-mile of the Project survey area. Therefore, no further coordination was necessary with either the ODNR and/or USFWS regarding the listed bat species for hibernacula; however, coordination with the ODNR and the USFWS will be necessary for tree clearing occurring outside of the seasonal restriction.

No impacts are anticipated for the mussel species as no in-water work is proposed as part of the Project.

The ODNR has provided guidance that open grasslands and wet meadow marshes of approximately 2 acres should be considered potential nesting habitat for the northern harrier. While the general Project area is heavily dominated by agricultural land with interspersed woodlands and residential properties, no areas were identified within Addendum #3 Project Survey that would contain suitable habitat for this species.

Across the entire Project area, there were two areas that met this definition for Harrier habitat and were identified were assessed as follows:

- Area #1 (Structures 61 to 62 – Old field habitat approximately 10 acres in size, bordered by woodland to the north, east, and west and active agriculture to the south. Due to the “edge effect”

created by the close proximity of the forested areas, the field is not considered to provide favorable nesting conditions.

- Area #4 (Structures 8 to 9) – Hay field habitat approximately 20 acres in size, closely situated near residential structures and bordered by active agriculture to the east. Due to the proximity to residential disturbance and the regular maintenance the field undergoes for hay production, the field is less probable to provide suitable nesting opportunities.

Therefore, no further coordination regarding this listed species is necessary concerning this Project.

4.0 SUMMARY

The ecological field survey of the Addendum #3 Project Survey Area identified one new PEM wetland (W-AGS-001), extended and reclassified as a PFO/PEM wetland complex one previously identified PFO wetland (W-MRK-021), one new ephemeral stream (S-AGS-001), extended two previously identified perennial streams (S-MRK-020 and S-MRK-022), and one upland drainage features.

Within the overall Project Survey Area (Original, Addendum #1, and Addendum #3), AECOM identified a total of 20 wetlands (seven PEM, one PSS, ten PFO, and two PEM/PFO), 19 streams (nine perennial, seven intermittent, and three ephemeral). Of the 20 wetlands identified in the entire Project Survey Area, eleven were assigned as Category 1 wetlands and nine were assigned as Category 2 wetlands. Of the 19 streams identified in the Project Survey Area, 14 were classified with HHEI methodology (four Class I PHW and 10 Class II PHW), four were classified with QHEI methodology, and one stream had an existing use designation under Chapter 3745-1 as Warmwater Habitat.

AECOM has preliminary determined that the assessed streams within the Project Survey Area appear to be jurisdictional (i.e., WOTUS). The reported results of the ecological survey conducted by AECOM on this Project are limited to the areas within the Project Survey Area provided on **Figure 3**. Areas that fall outside of the Project Survey Area were not evaluated in the field and are not included in the reporting of this survey.

Of the previously ten state and/or federal listed threatened or endangered species identified within range of the Project area as identified within the original coordination provided for this Project included as **Appendix F**, the Project is not likely to impact the listed aquatic or bird for the areas within the Addendum #3 Project Survey Area as well as the entire Project area.

Both Addendum #3 and entire Project Survey areas (Original Report, Addendum #1, and Addendum #3) had potential summer roosting habitat identified for the four bat species (Indiana bat – *Myotis sodalist*; Northern long-eared bat - *Myotis septentrionalis*; little brown bat – *Myotis lucifugus*; and tricolored bat – *Perimyotis subflavus*). If tree clearing cannot be completed during the seasonal tree clearing restriction (October 1 to March 31), further coordination with the ODNR/USFWS is still warranted

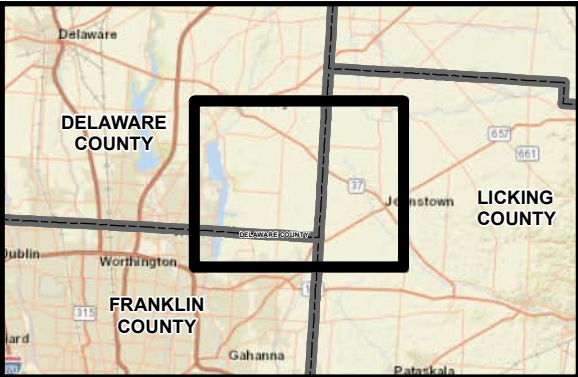
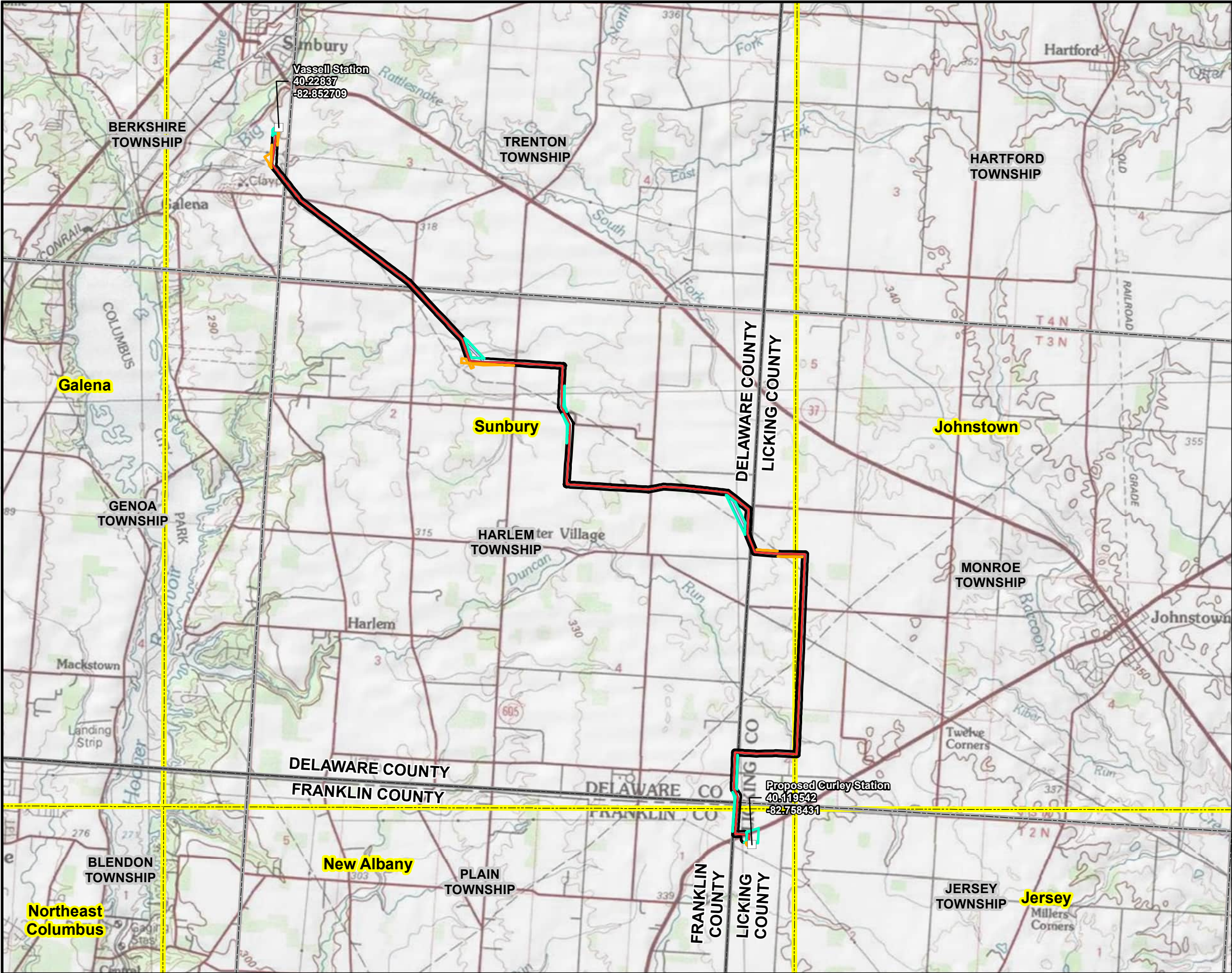
The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which AECOM is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of AECOM.

5.0 REFERENCES

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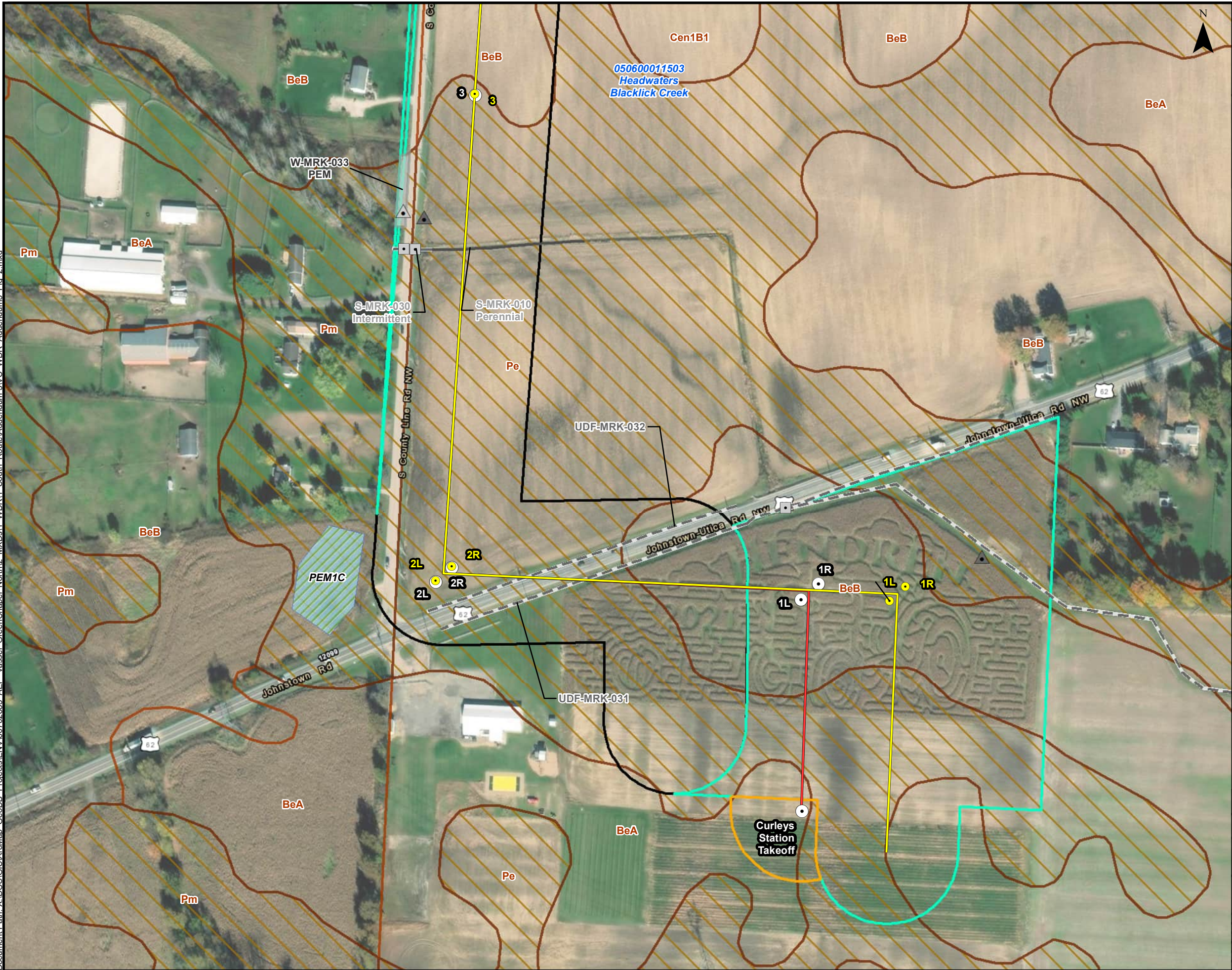
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- Project Survey Area - Addendum 1
- Project Survey Area - Original Report
- Vassell - Curley 345kV Transmission Line
- Potential Alternative
- Ohio USGS 7.5' Topographic Quadrangle
- Township Boundary
- County Boundary

0 0.5 1 2
Miles

Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 1 PROJECT OVERVIEW	
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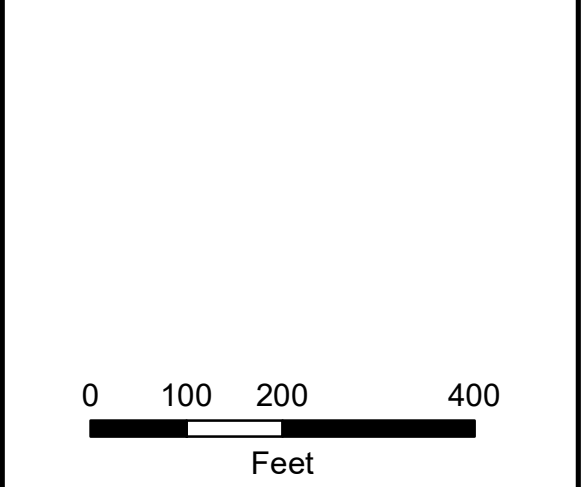


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- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Culvert
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Upland Drainage Feature
- Previously Delineated Intermittent Stream
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Addendum 3 Survey Area
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

Soil Map Unit Description

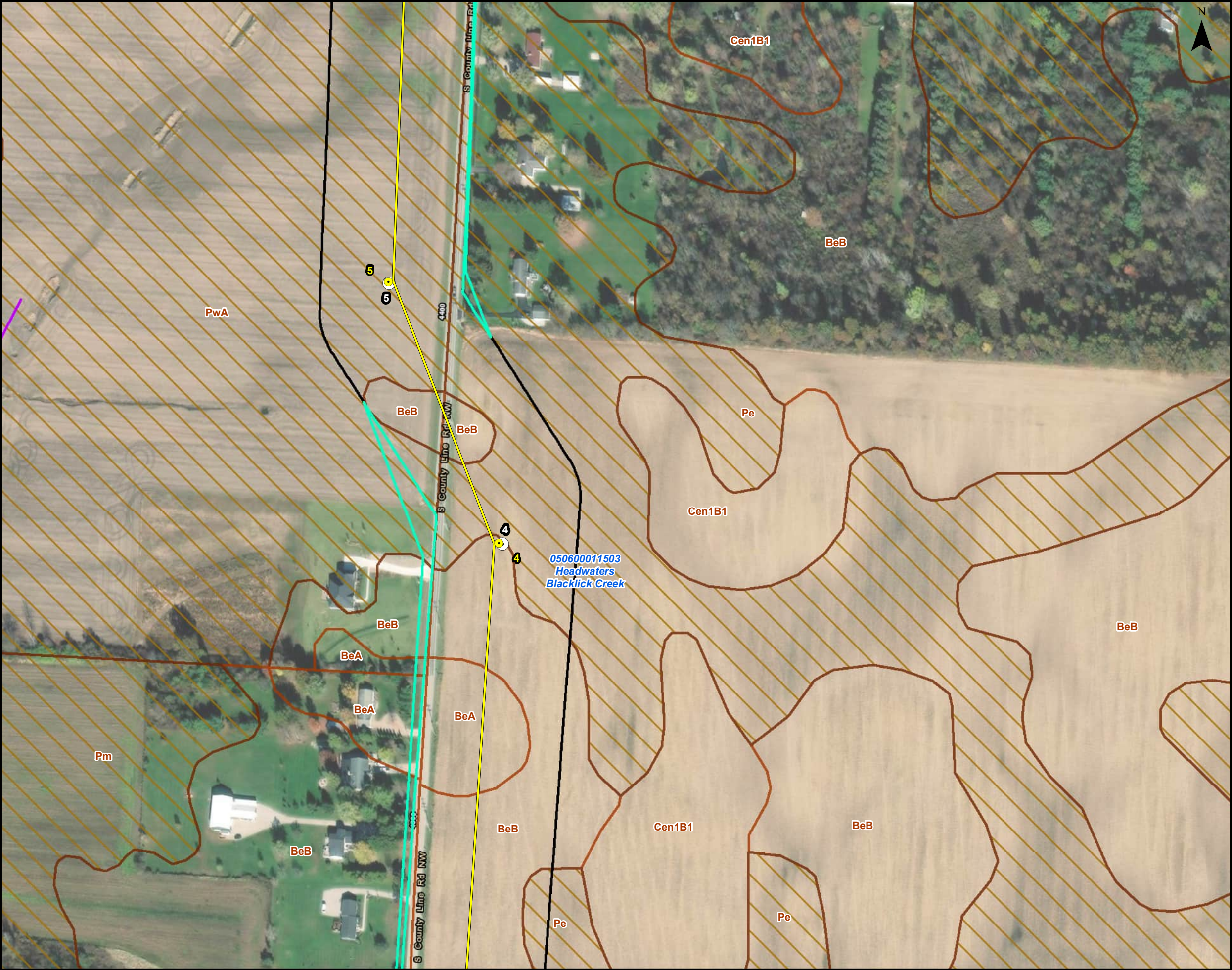
BeA - Bennington silt loam, 0 to 2 percent slopes
Pe - Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 1 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line
- NHD Stream (USGS)
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- HUC 12 (USGS)
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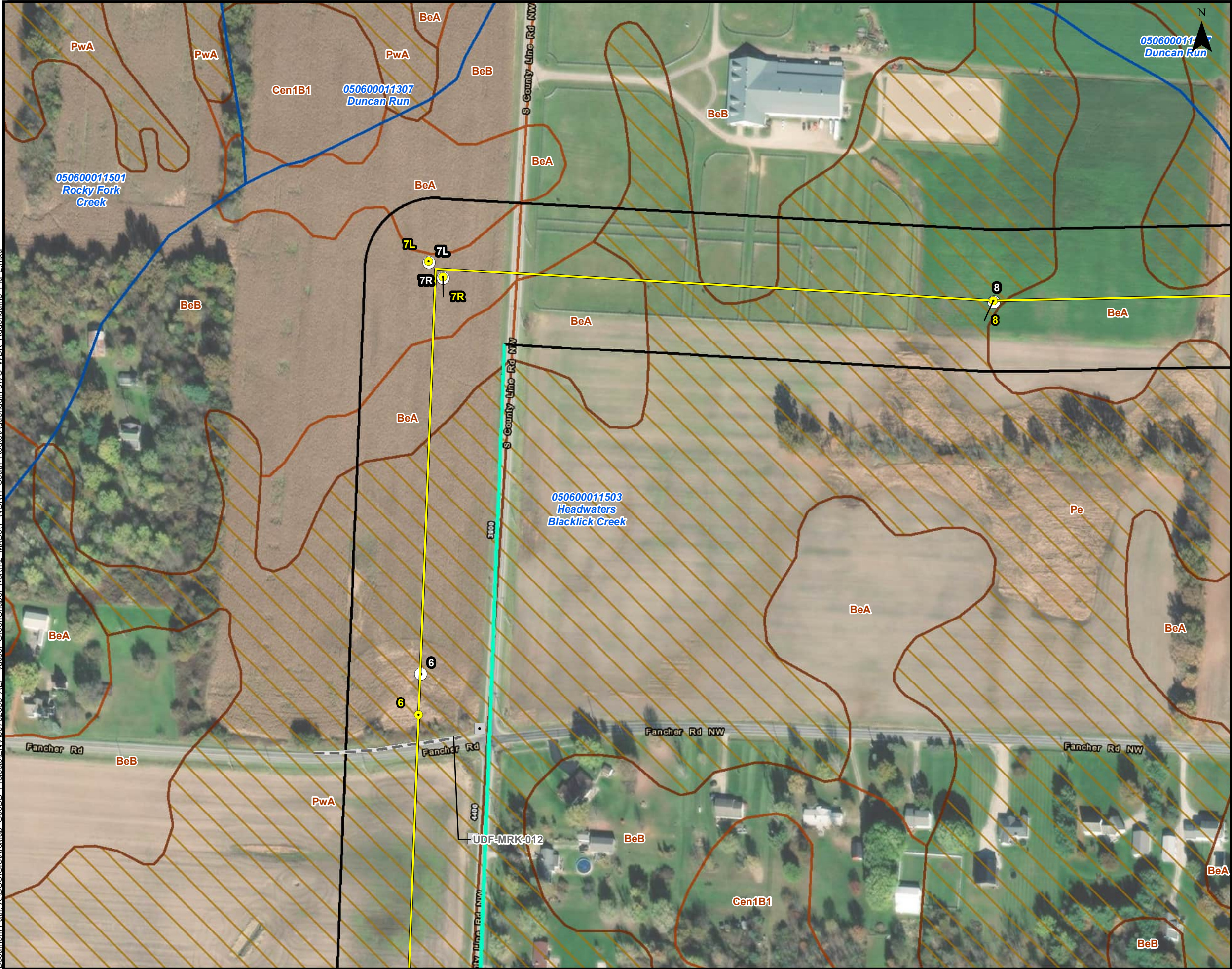


Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 2 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP

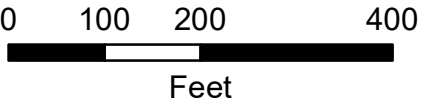
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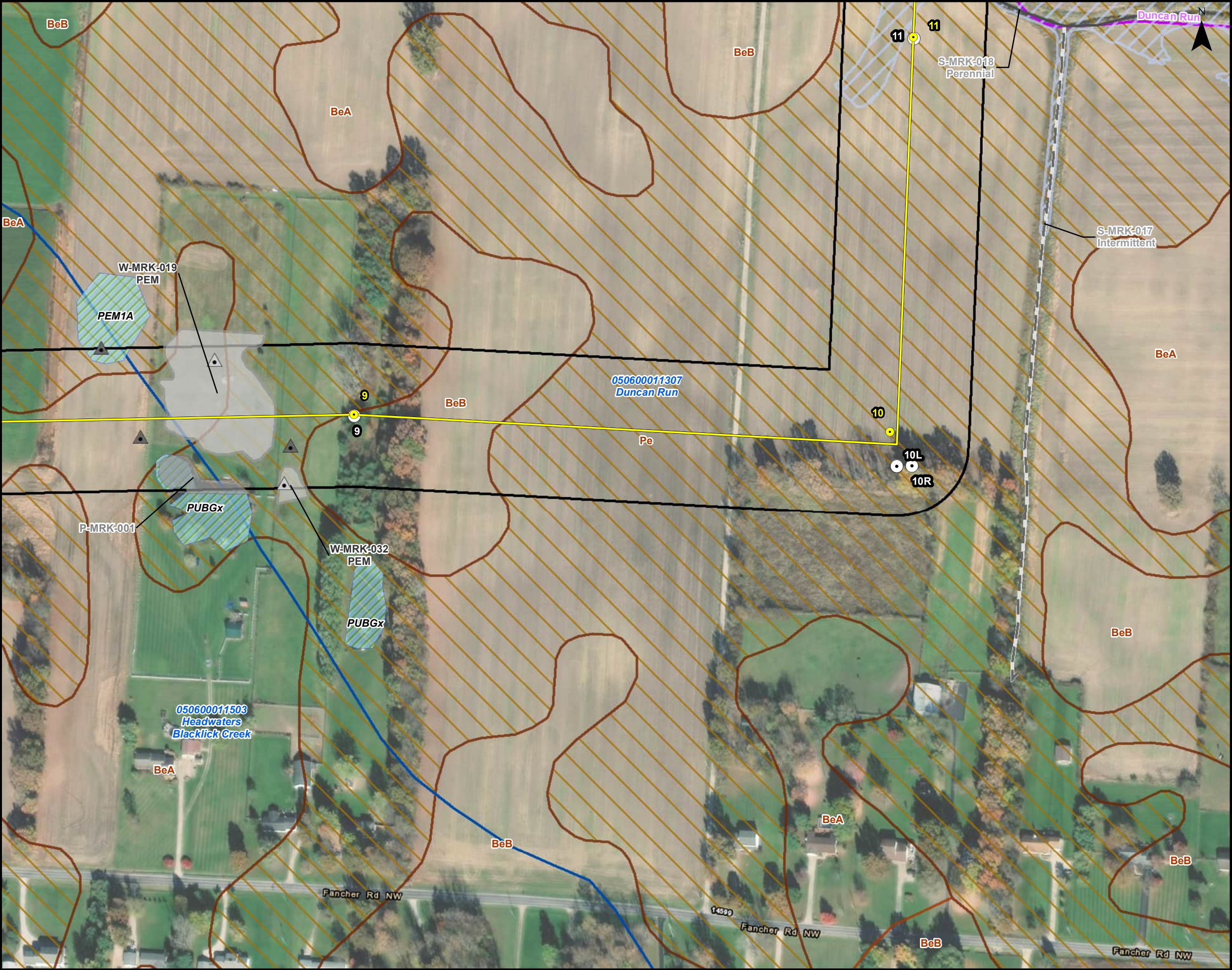
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- Proposed Structures
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- Previously Delineated Upland Drainage Feature
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydic SSURGO Soil Map Unit (NRCS)



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 3 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
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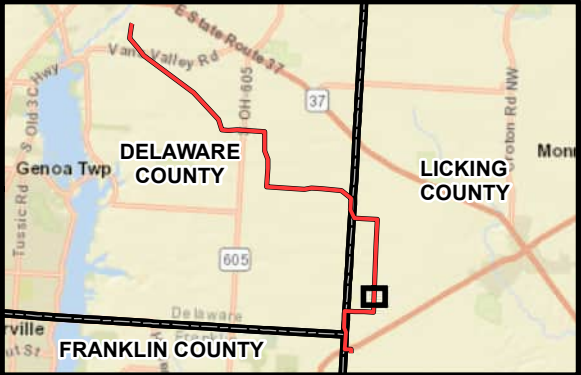
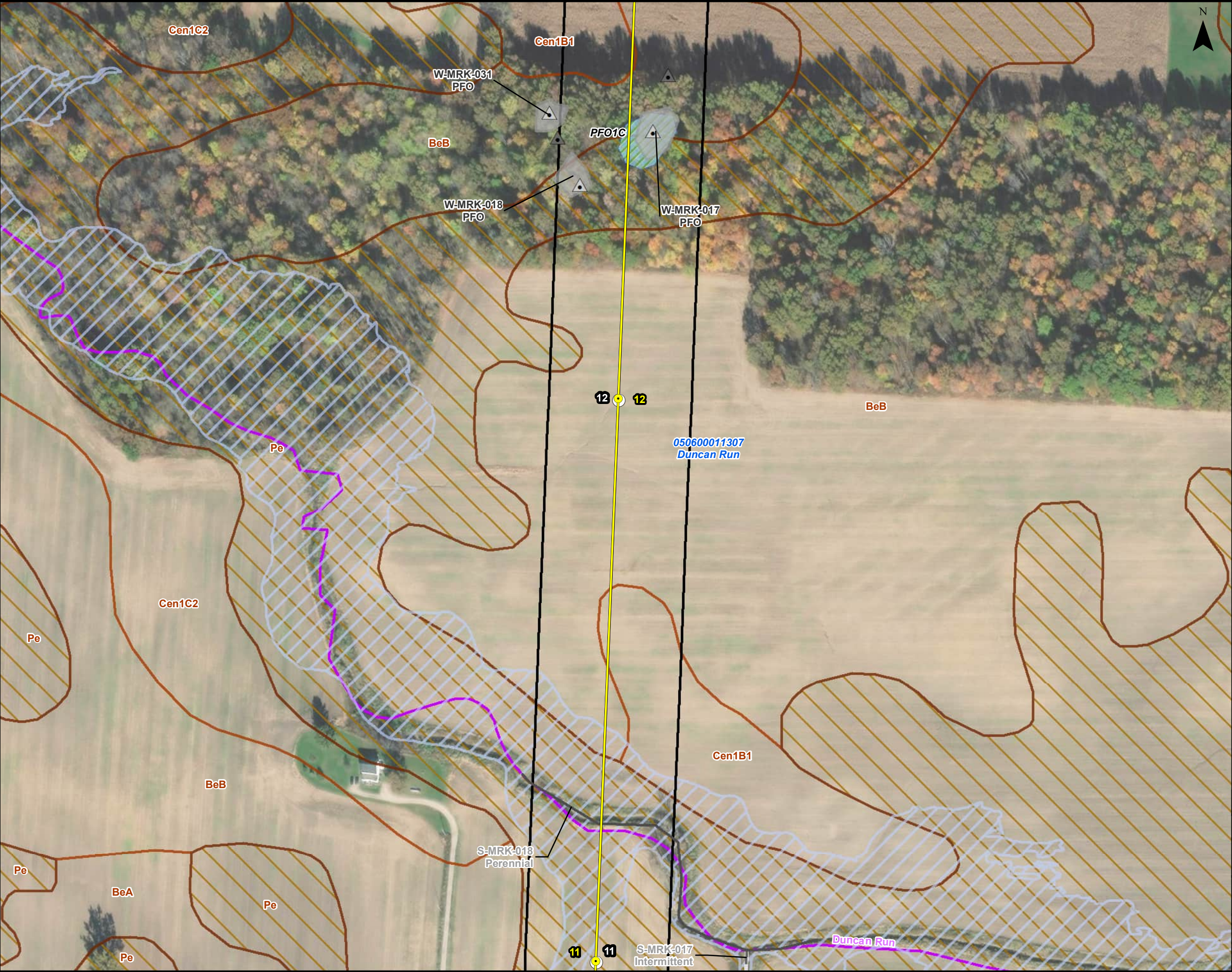
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- Previously Delineated Intermittent Stream
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Previously Delineated Pond
- NHD Stream (USGS)
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- NFHL 100-Year Floodplain (FEMA)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
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 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

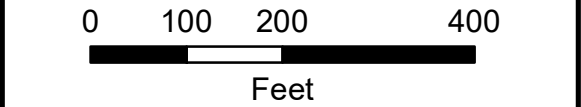
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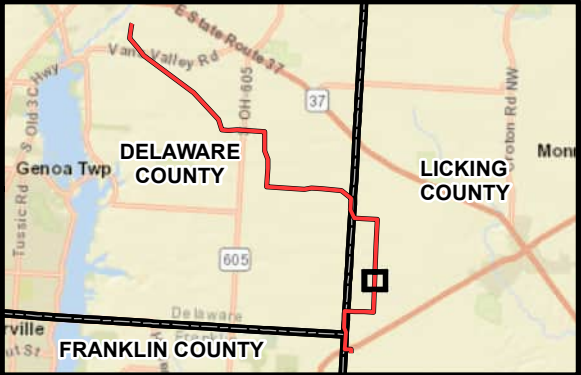
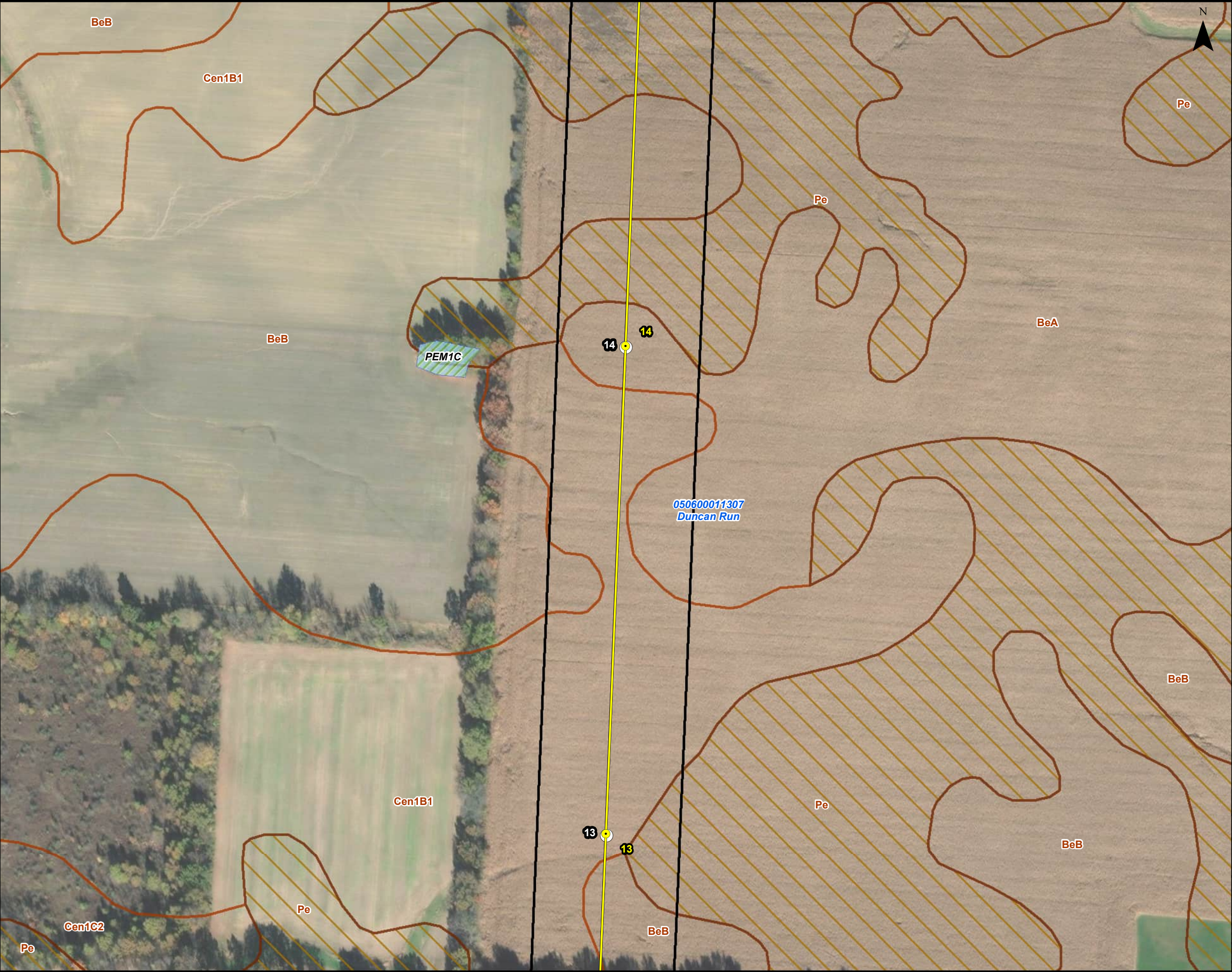
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- Proposed Structures
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- Previously Delineated Intermittent Stream
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- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- NFHL 100-Year Floodplain (FEMA)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

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- Proposed Structures
- Vassell - Curley 345kV Transmission Line
- Project Survey Area - Original Report
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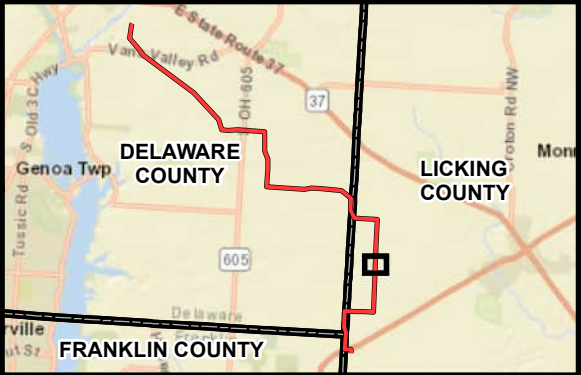
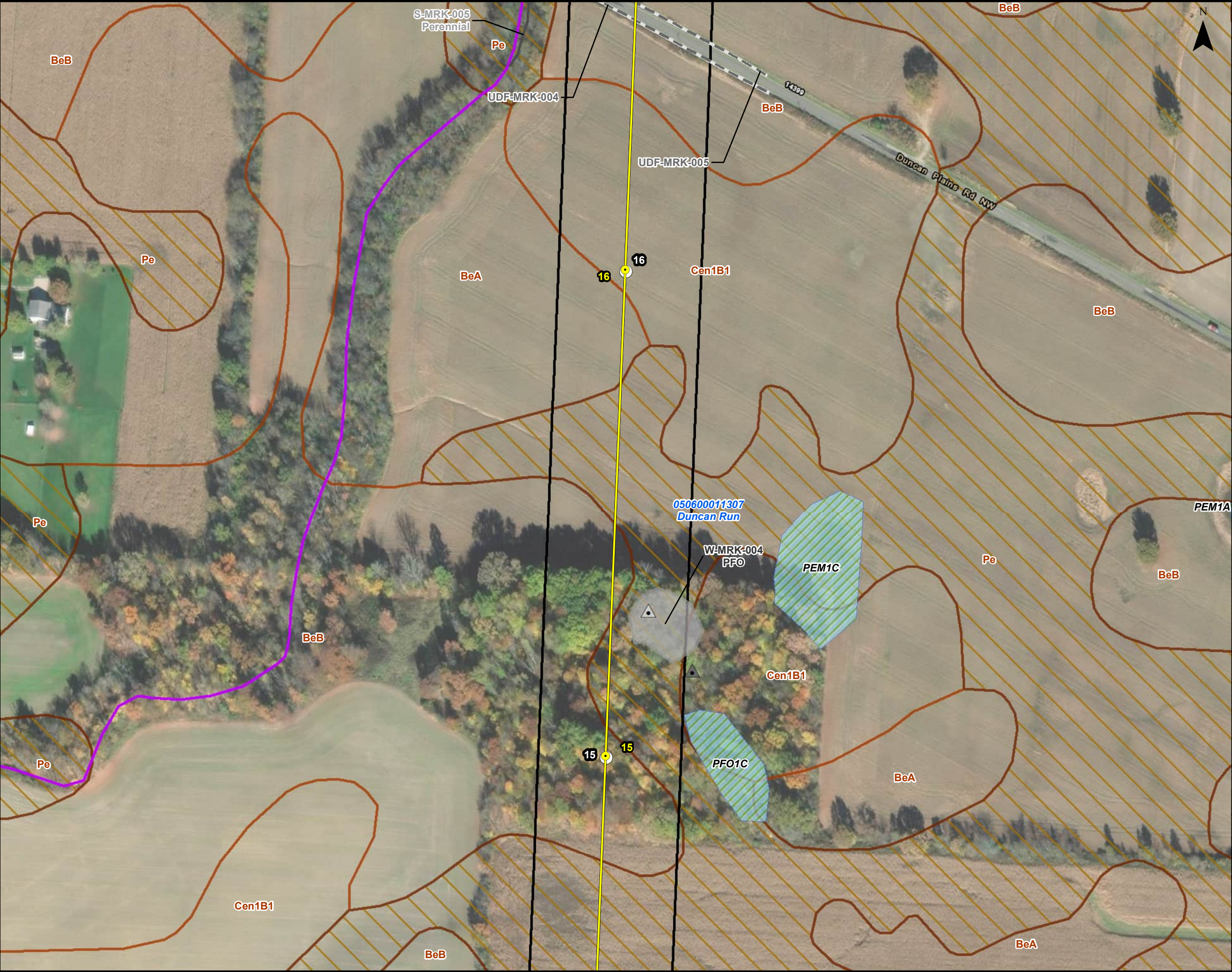
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Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2
SHEET 6 OF 28
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NATIONAL WETLANDS INVENTORY MAP

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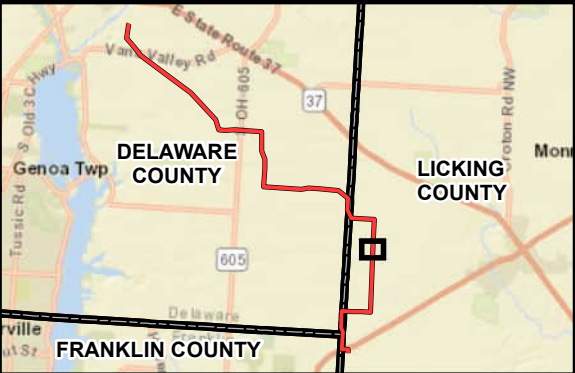
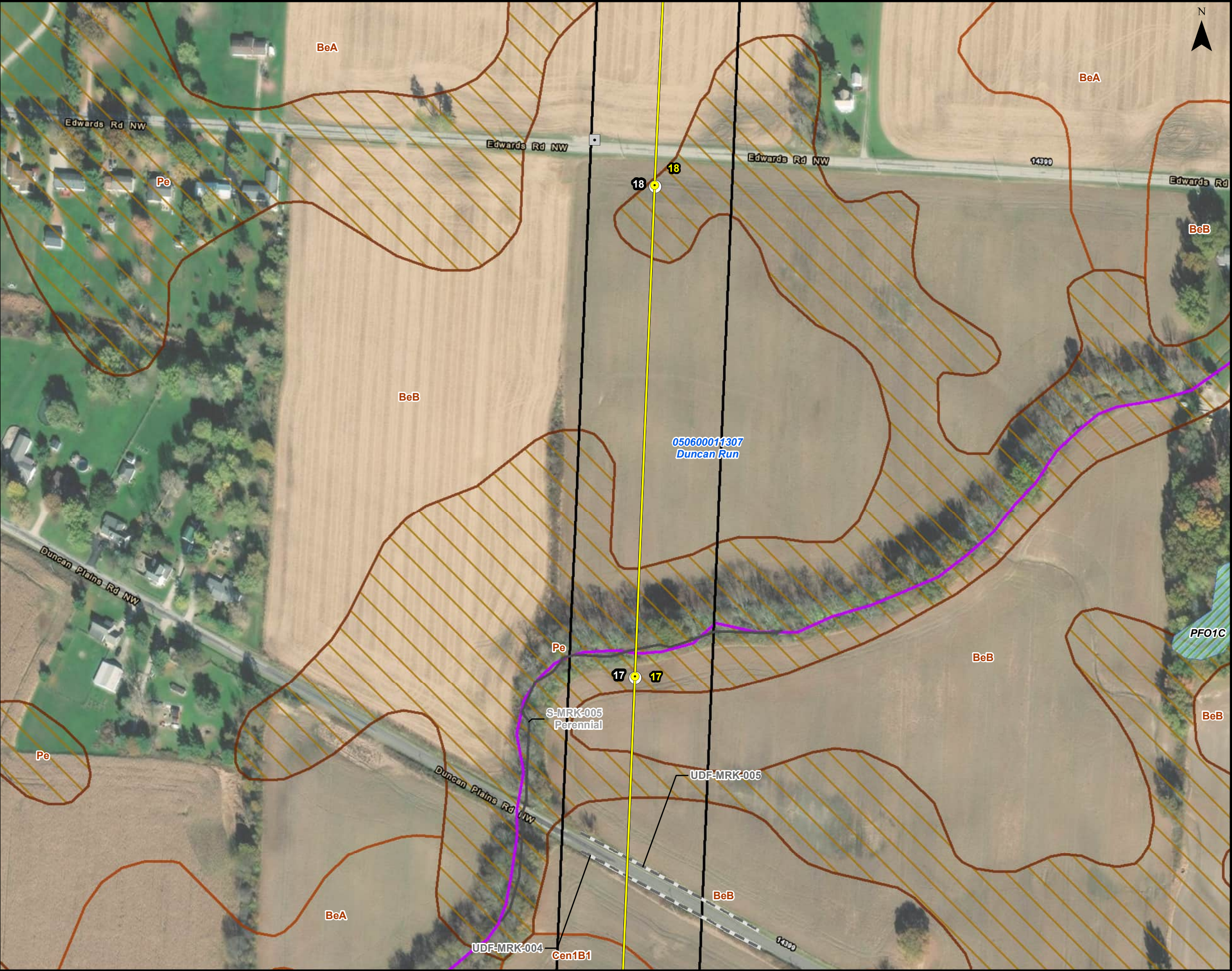
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- Previously Delineated Upland Drainage Feature
- Previously Delineated Perennial Stream
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
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- SSURGO Soil Map Unit (NRCS)
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 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

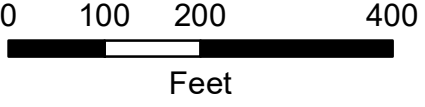
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- Culvert
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- Previously Delineated Perennial Stream
- NHD Stream (USGS)
- Project Survey Area - Original Report
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- HUC 12 (USGS)
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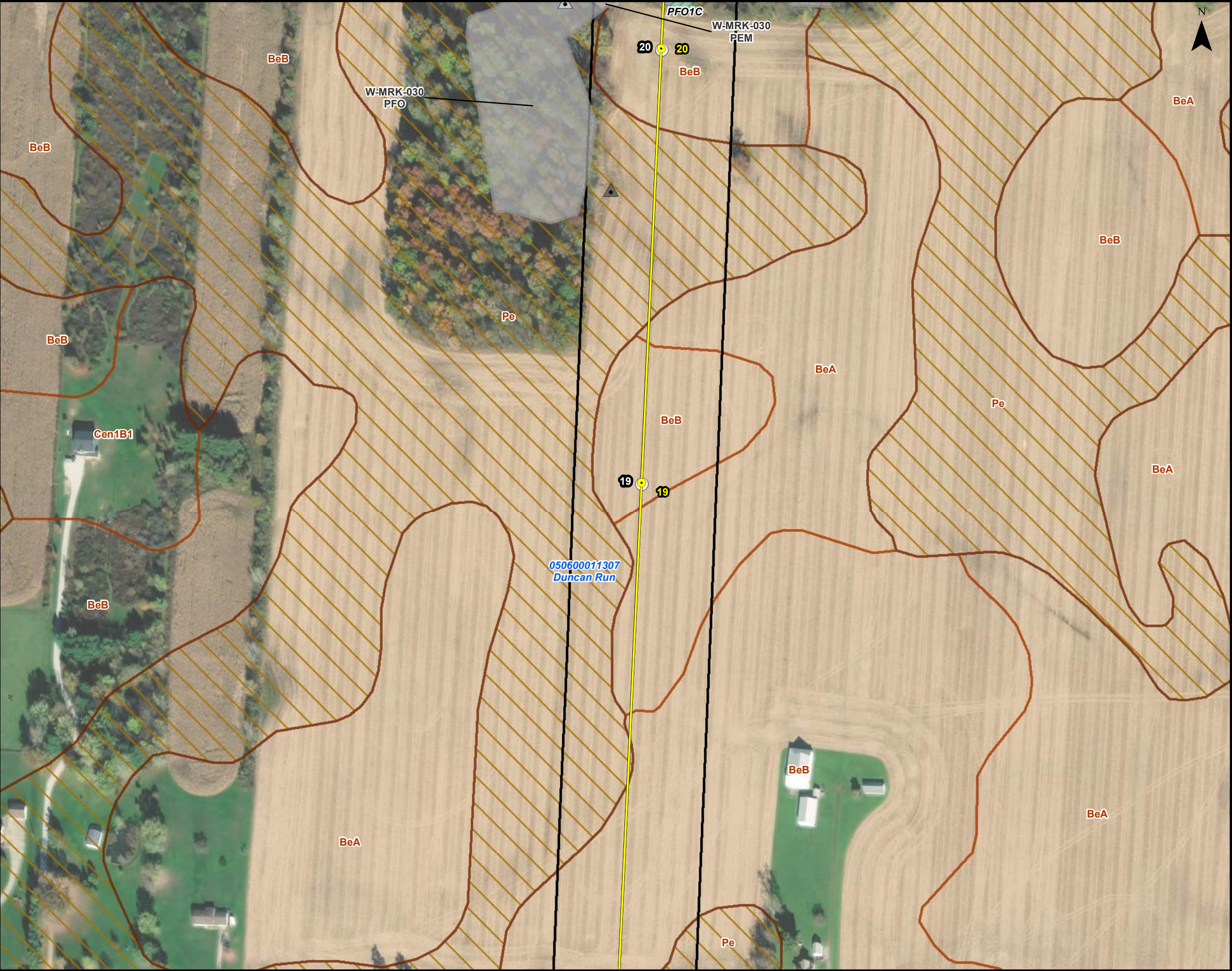


Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2
SHEET 8 OF 28
SOIL MAP AND
NATIONAL WETLANDS INVENTORY MAP

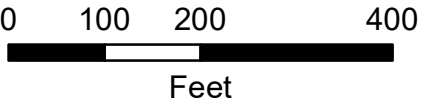
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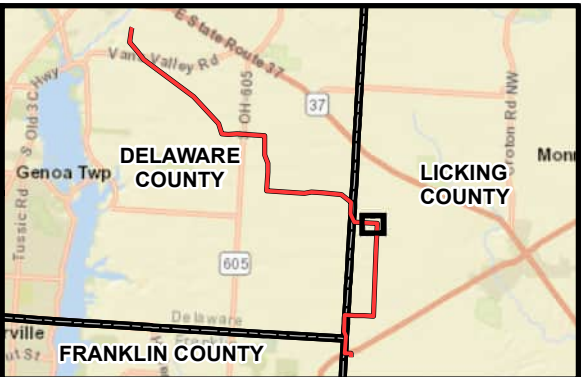
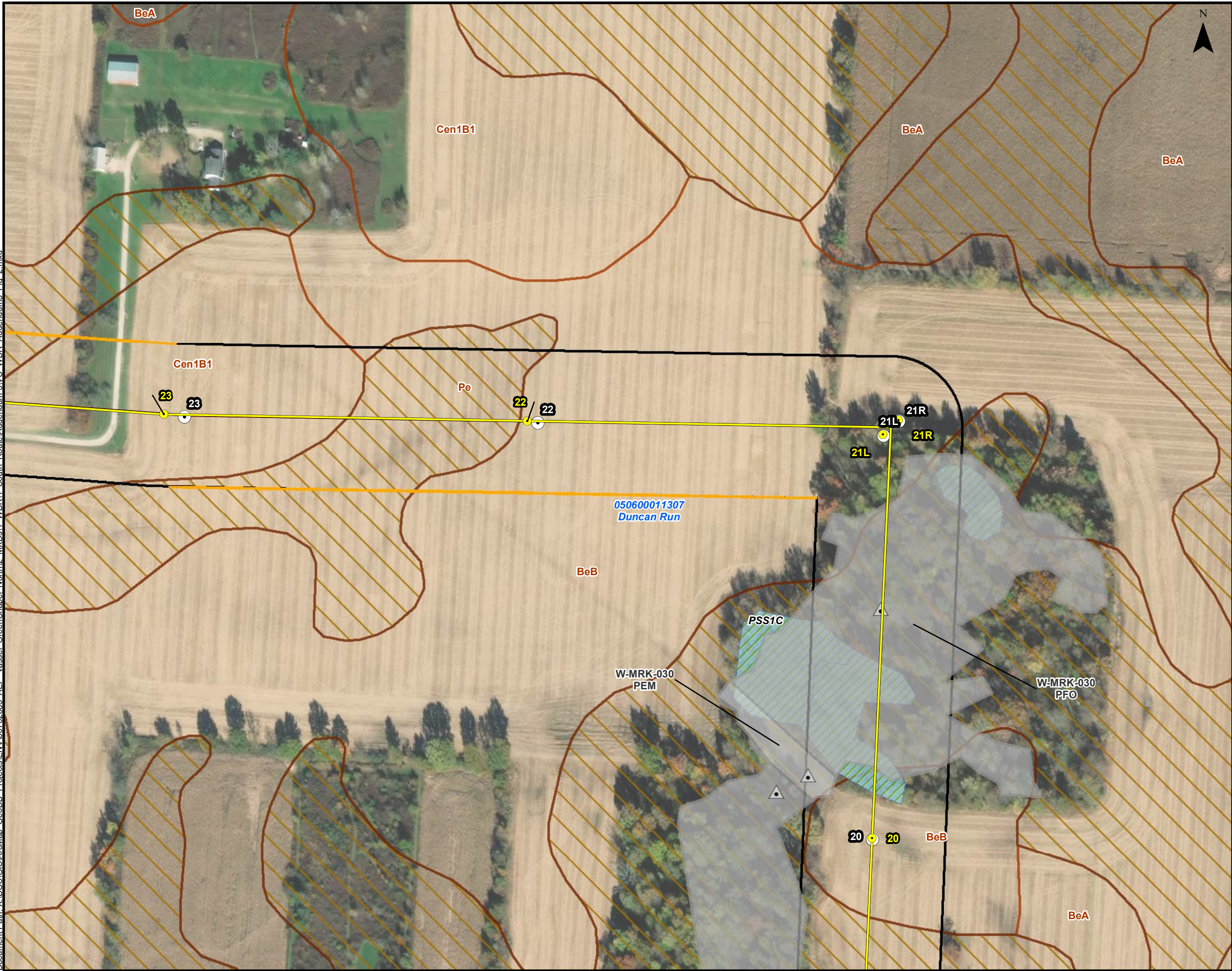
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- Previously Delineated PEM Wetland
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- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 9 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
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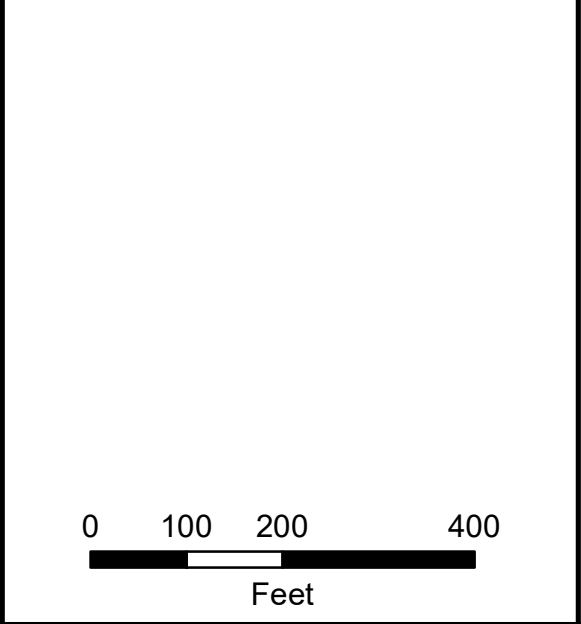


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- Previously Delineated PEM Wetland
- Previously Delineated PFO Wetland
- Addendum 3 Survey Area
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

Soil Map Unit Description

BeB - Bennington silt loam, 2 to 6 percent slopes
Cen1B1 - Centerburg silt loam, 2 to 6 percent slopes
Pe - Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 10 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
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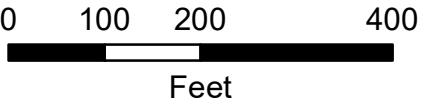
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- Potential Alternative
- Previously Delineated Upland Drainage Feature
- Addendum 3 Survey Area
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- NHD Waterbody (USGS)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

Soil Map Unit Description

Cen1B1 - Centerburg silt loam, 2 to 6 percent slopes

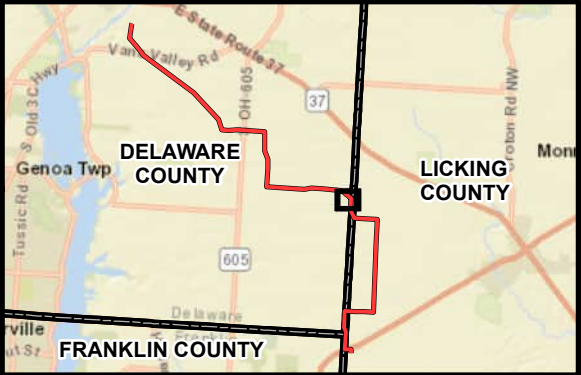
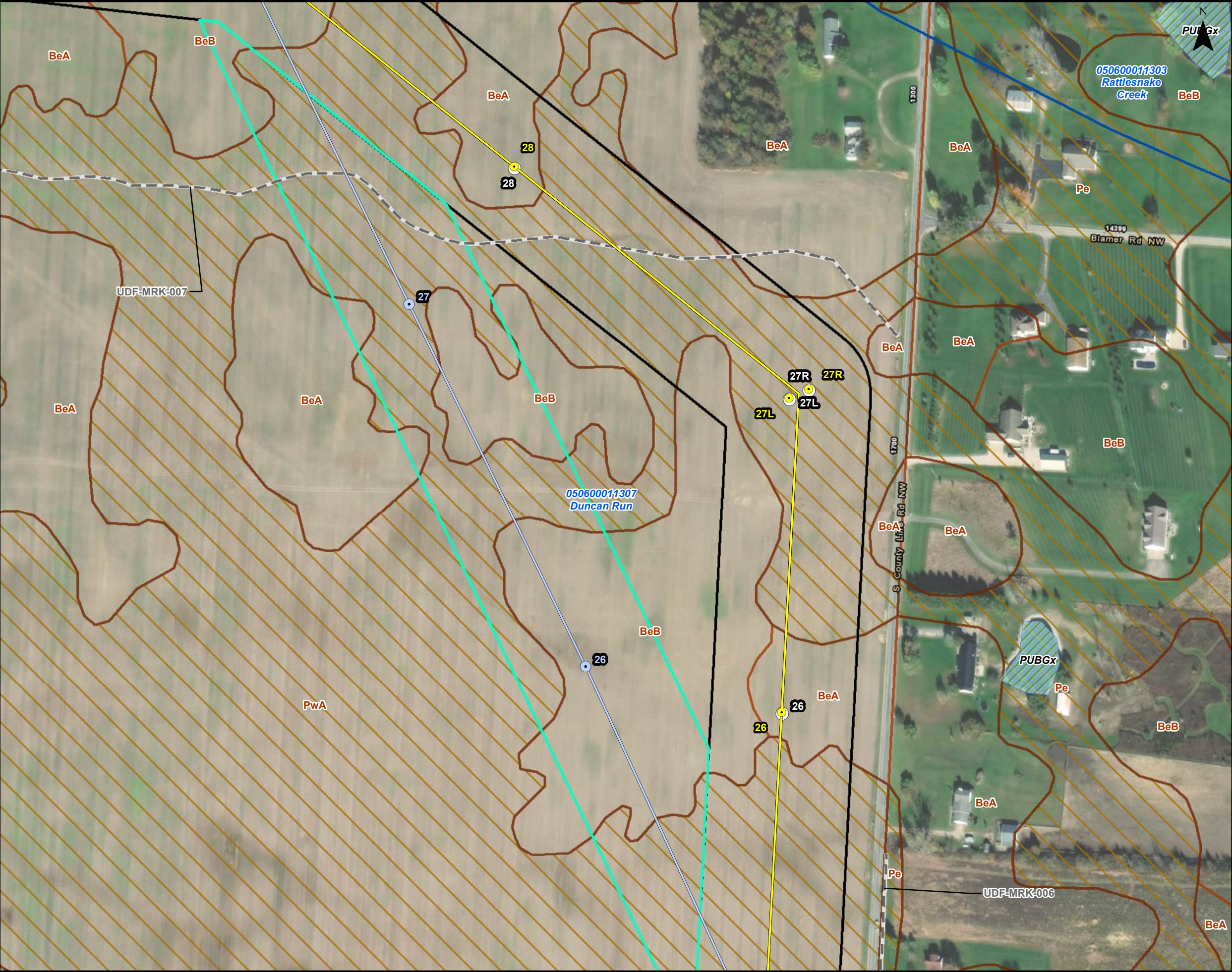
Pe - Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 11 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
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Document Path: X:\DCS\GIS\ArchMap_GeoDB_Proj\DCS\GIS\ArchMap_North2_MXD\11_WDR1_South_Route\Addendum 3\VC_WDR_Addendum3_Fig 2.mxd



Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Potential Alternative
- Previously Delineated Upland Drainage Feature
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

0 100 200 400

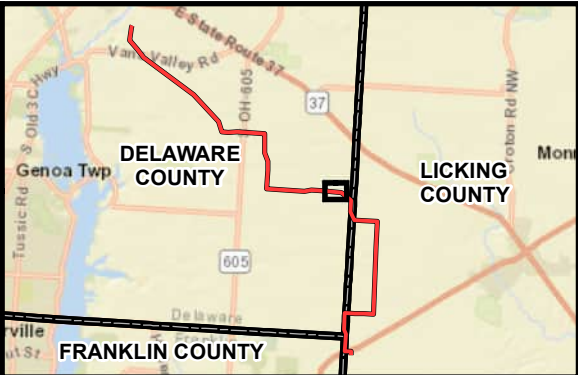
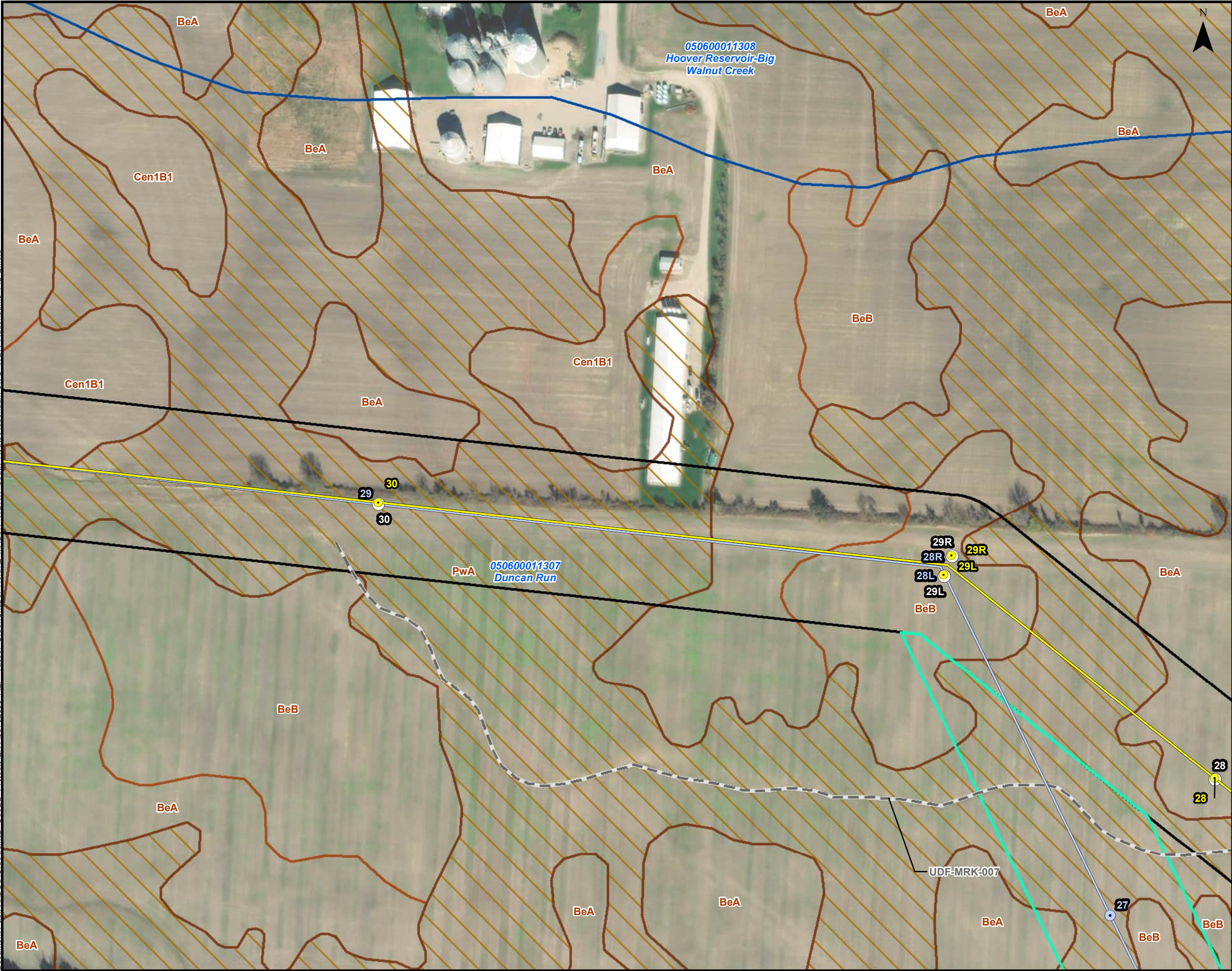
Feet

Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

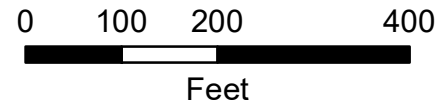
FIGURE 2
SHEET 12 OF 28
SOIL MAP AND
NATIONAL WETLANDS INVENTORY MAP

DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
Document Path: X:\DCS\GIS\ArchMap_GeoDB_Protec\IENV\60702685_AEP_Vassel_GreenChapel_North\2_MXD\1_WDR\1_South_Route\Addendum 3\VC_WDR_Addendum3_Fig 2.mxd



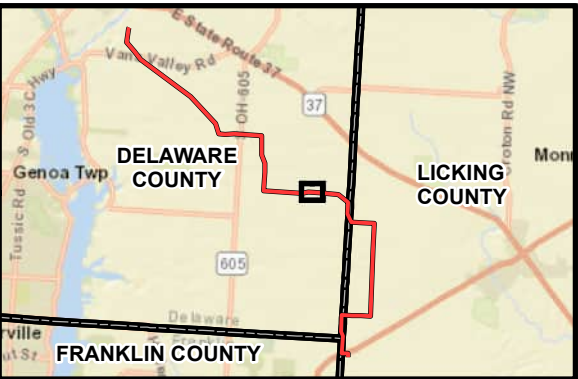
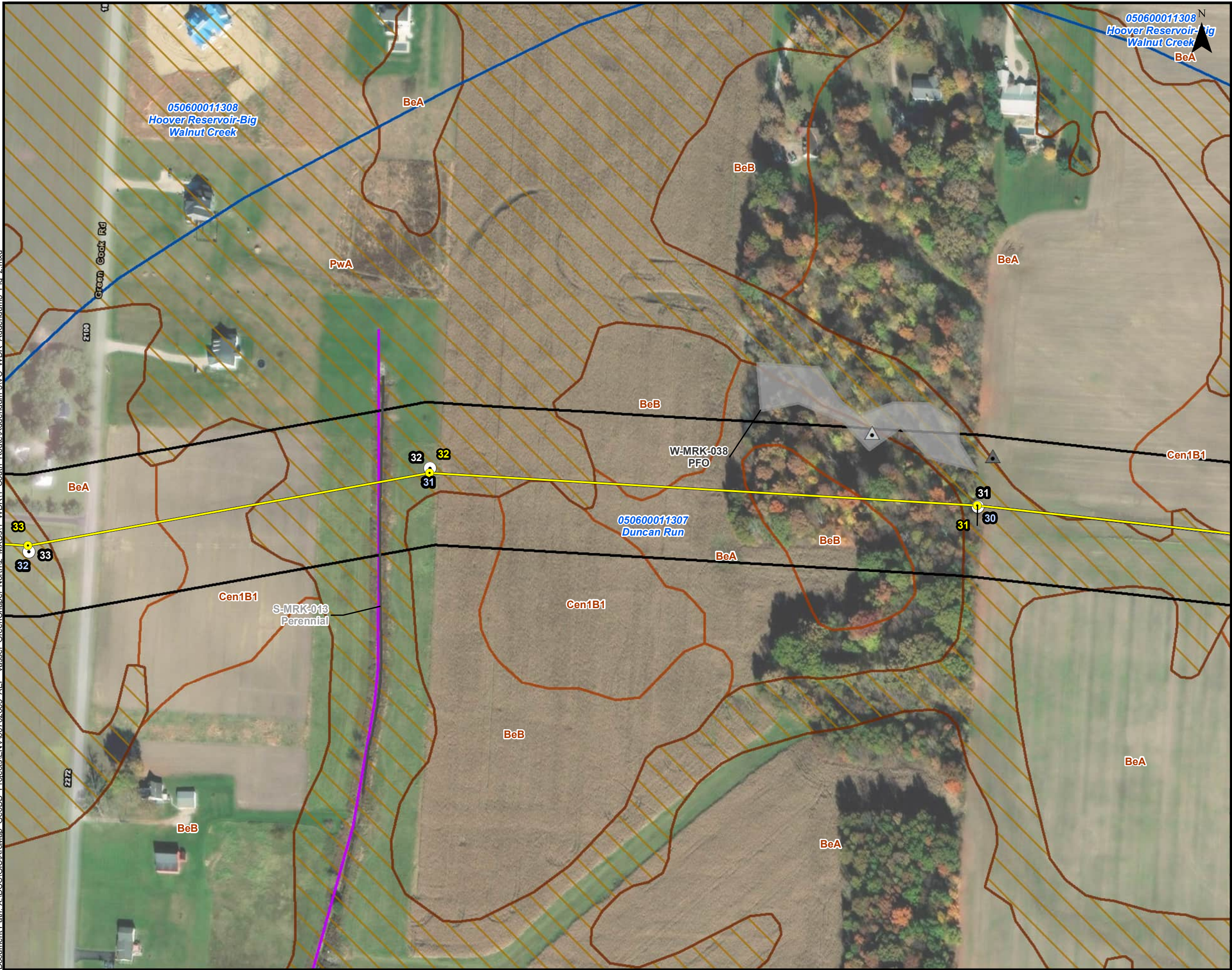
- Legend**
- Structure (Addendum 1)
 - Vassell - Curley 345kv Transmission Line (Addendum 1)
 - Proposed Structures
 - Proposed Alternative Structures
 - Vassell - Curley 345kv Transmission Line
 - Potential Alternative
 - Previously Delineated Upland Drainage Feature
 - Addendum 1 Survey Area
 - Project Survey Area - Original Report
 - HUC 12 (USGS)
 - SSURGO Soil Map Unit (NRCS)
 - Hydric SSURGO Soil Map Unit (NRCS)



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

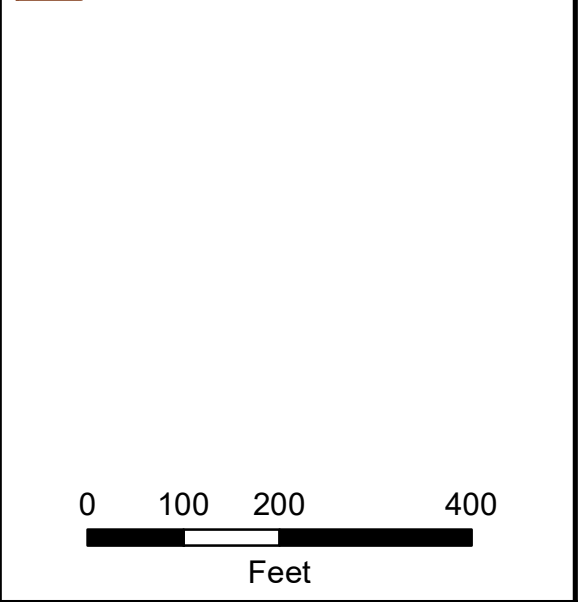
FIGURE 2 SHEET 13 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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Legend

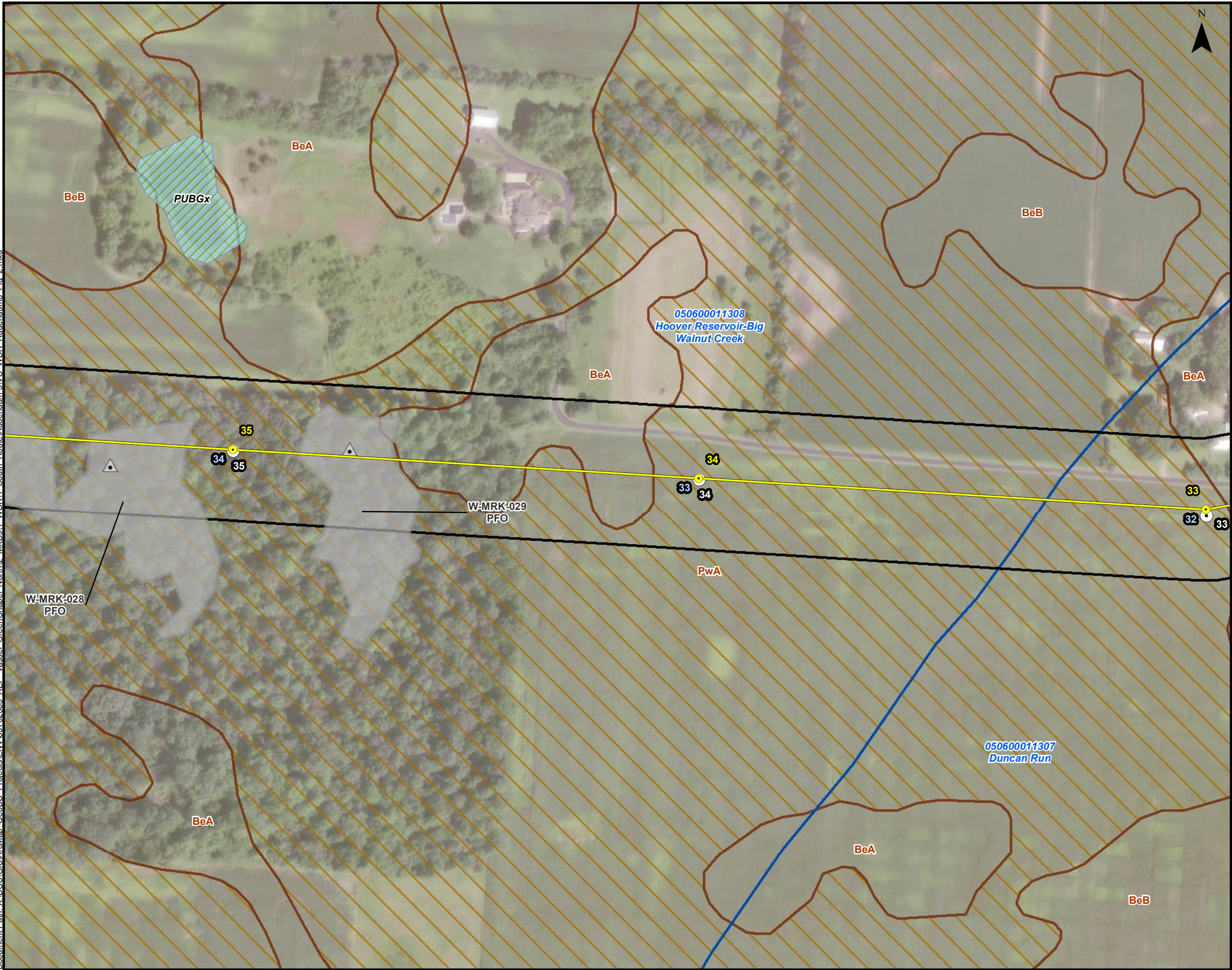
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line
- Potential Alternative
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Perennial Stream
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Project Survey Area - Original Report
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)



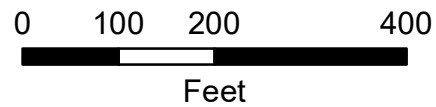
Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 14 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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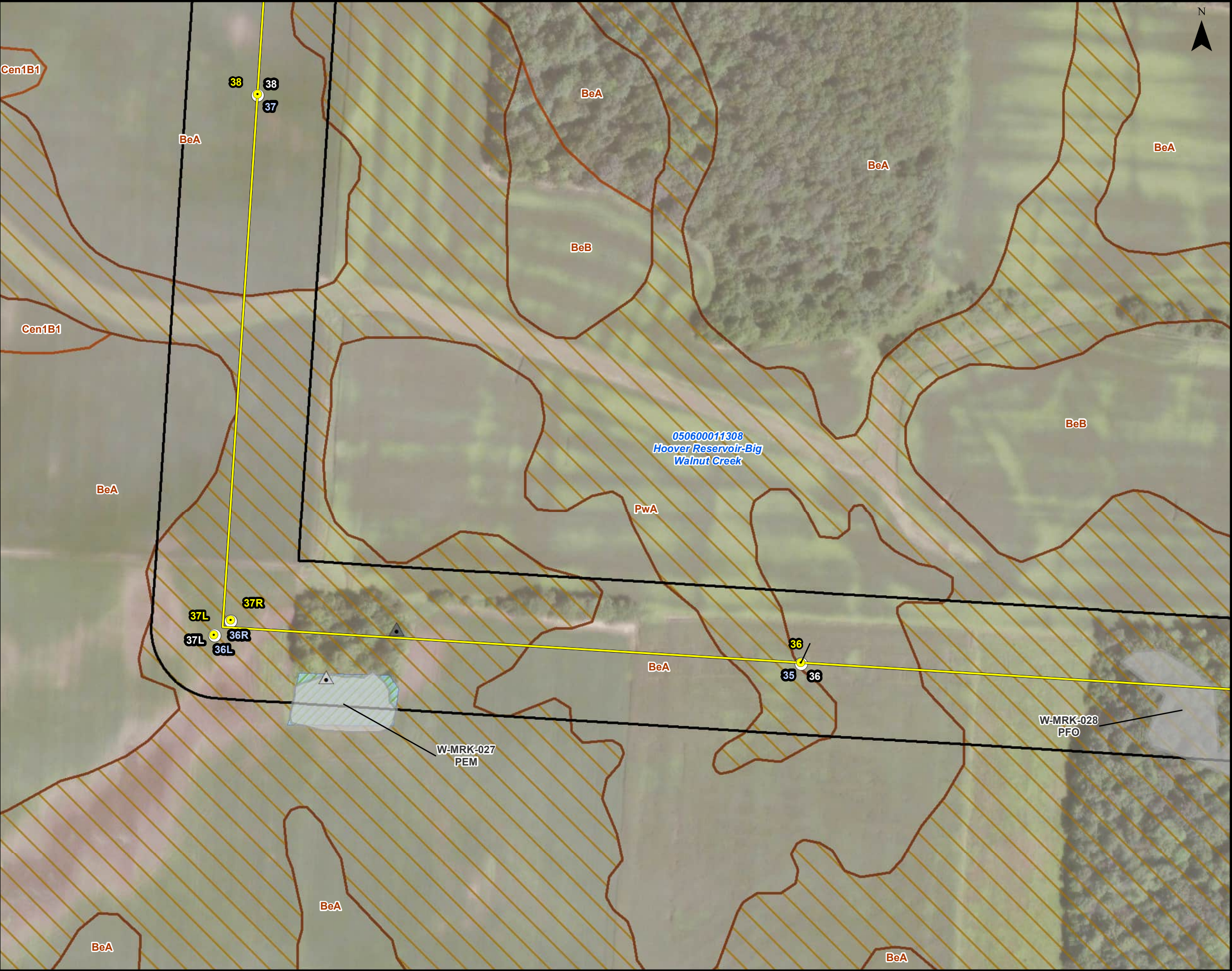
- Legend**
- Structure (Addendum 1)
 - Vassell - Curley 345kV Transmission Line (Addendum 1)
 - Proposed Structures
 - Proposed Alternative Structures
 - Vassell - Curley 345kV Transmission Line
 - Previously Delineated Wetland Data Point
 - Previously Delineated PFO Wetland
 - Project Survey Area - Original Report
 - NWI Wetland (USFWS)
 - HUC 12 (USGS)
 - SSURGO Soil Map Unit (NRCS)
 - Hydric SSURGO Soil Map Unit (NRCS)



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

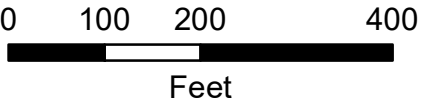
FIGURE 2 SHEET 15 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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Legend

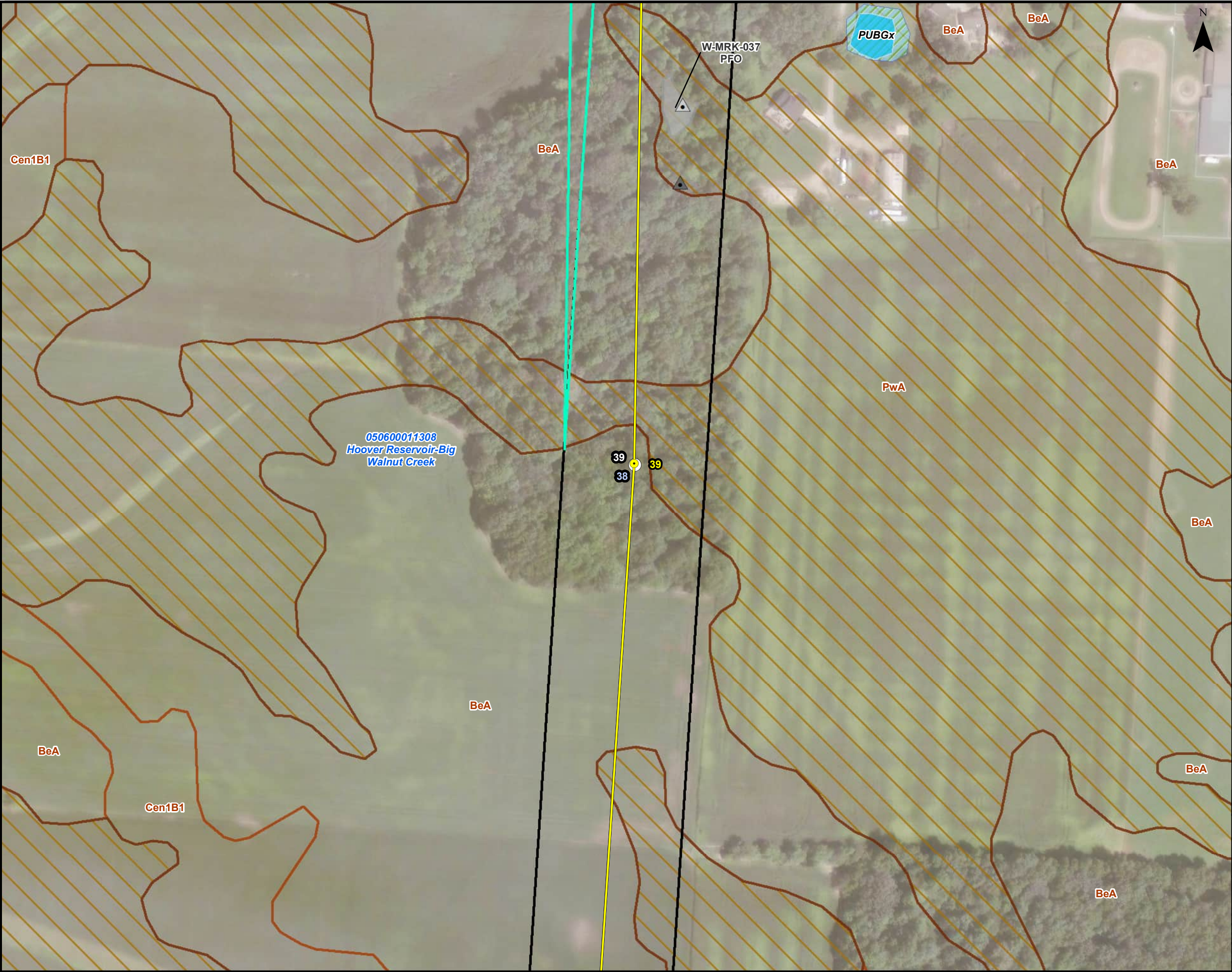
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated PEM Wetland
- Previously Delineated PFO Wetland
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)



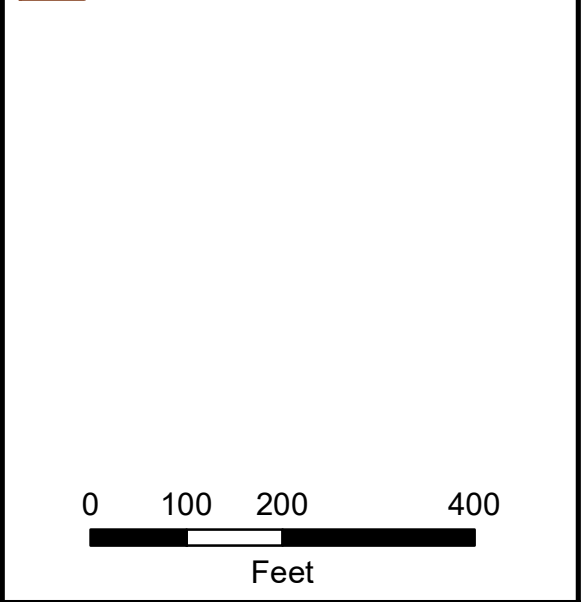
Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 16 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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- Legend**
- Structure (Addendum 1)
 - Vassell - Curley 345kV Transmission Line (Addendum 1)
 - Proposed Structures
 - Proposed Alternative Structures
 - Vassell - Curley 345kV Transmission Line
 - Previously Delineated Wetland Data Point
 - Previously Delineated Upland Data Point
 - Previously Delineated PFO Wetland
 - Addendum 1 Survey Area
 - Project Survey Area - Original Report
 - NWI Wetland (USFWS)
 - NHD Waterbody (USGS)
 - HUC 12 (USGS)
 - SSURGO Soil Map Unit (NRCS)
 - Hydric SSURGO Soil Map Unit (NRCS)

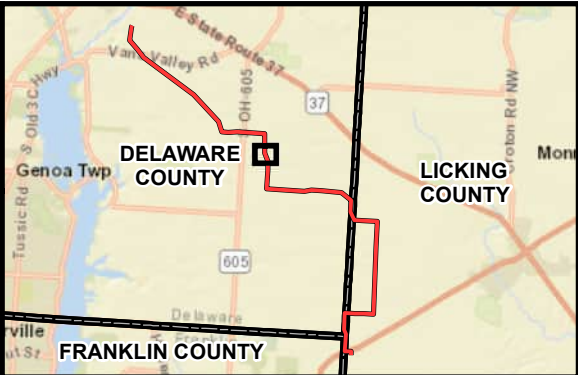
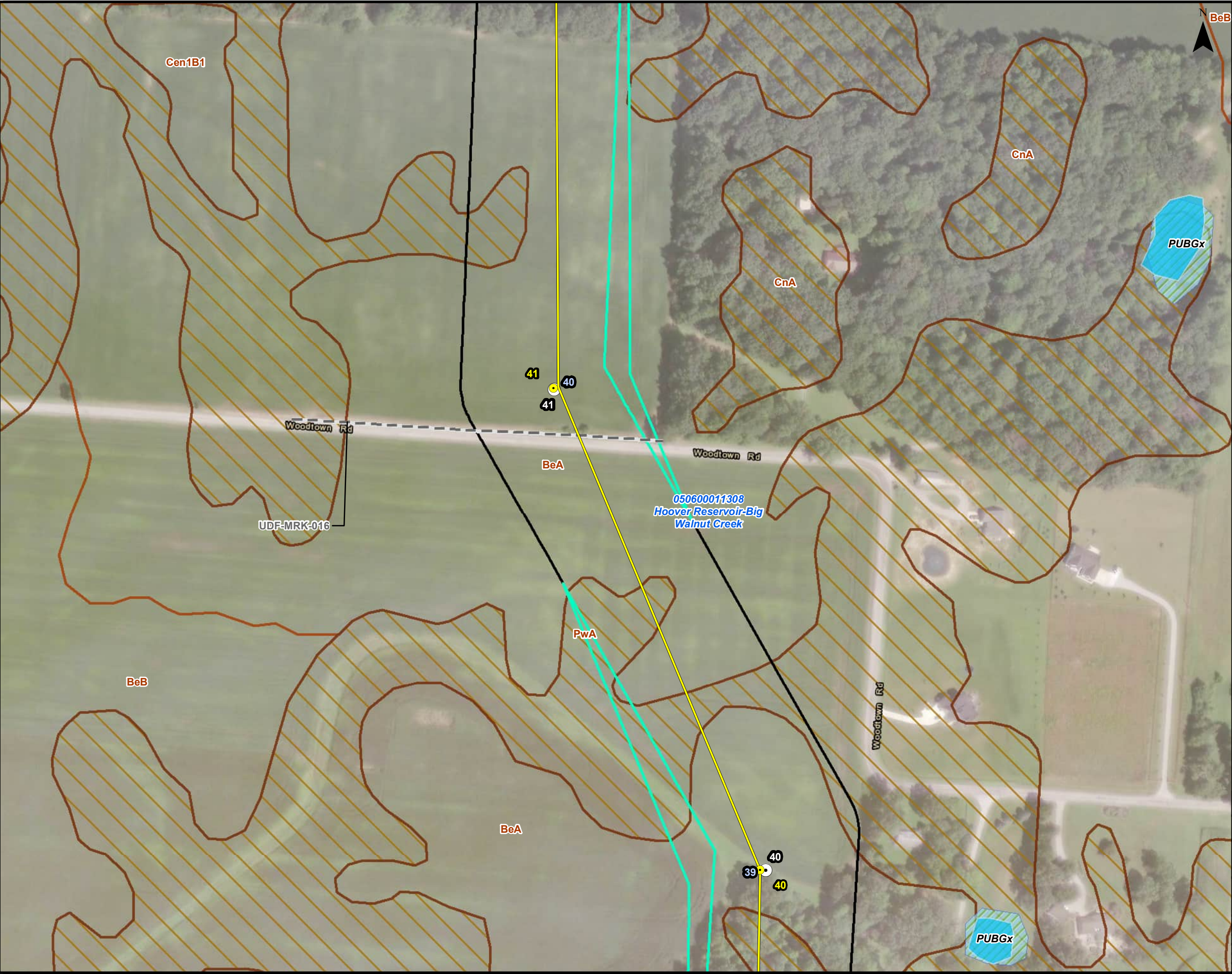


Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2
SHEET 17 OF 28
SOIL MAP AND
NATIONAL WETLANDS INVENTORY MAP

DATE: 2/7/2025	1 INCH = 200 FEET
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Date Saved: 2/7/2025
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Legend

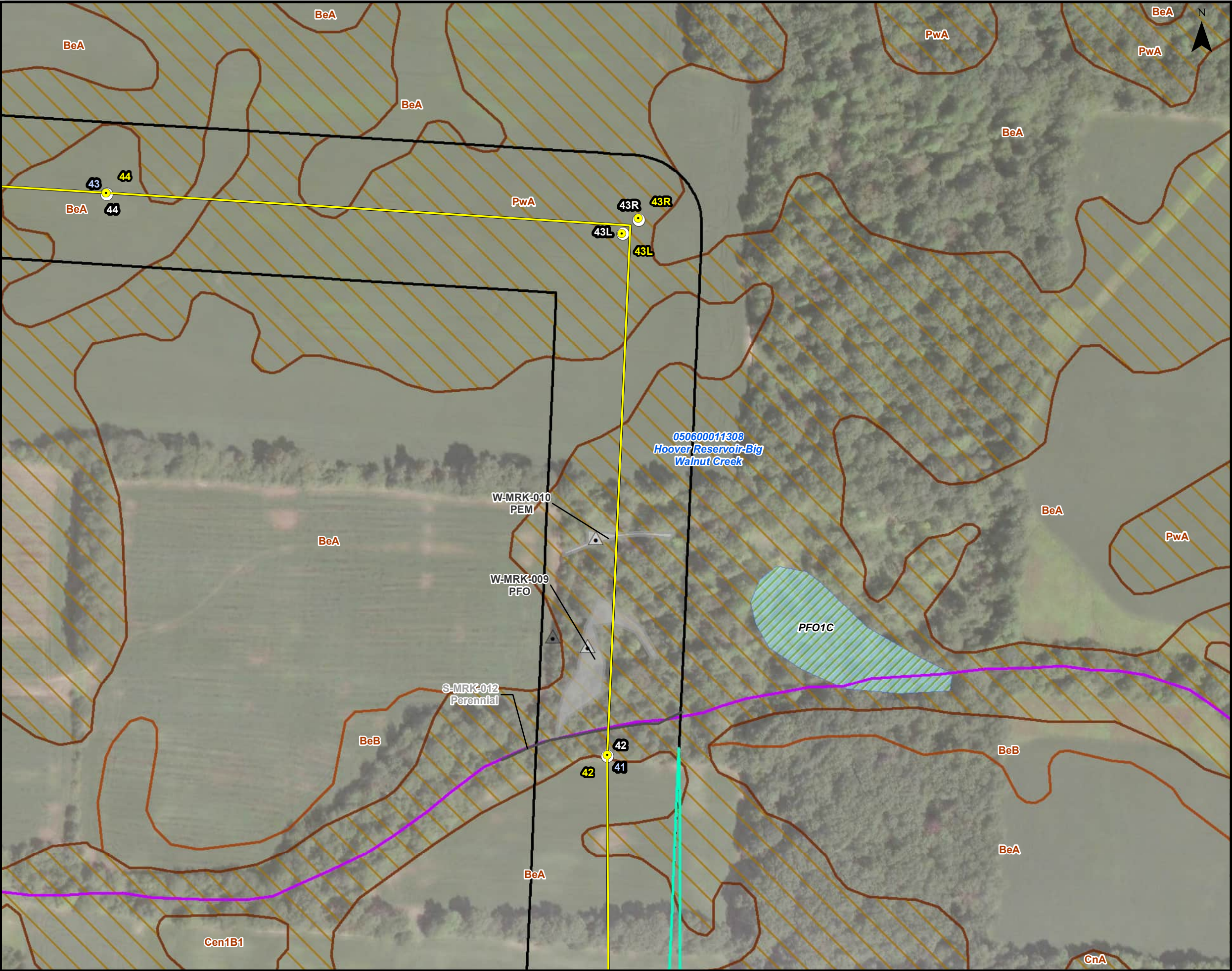
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Upland Drainage Feature
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- NHD Waterbody (USGS)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

0 100 200 400
Feet

 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

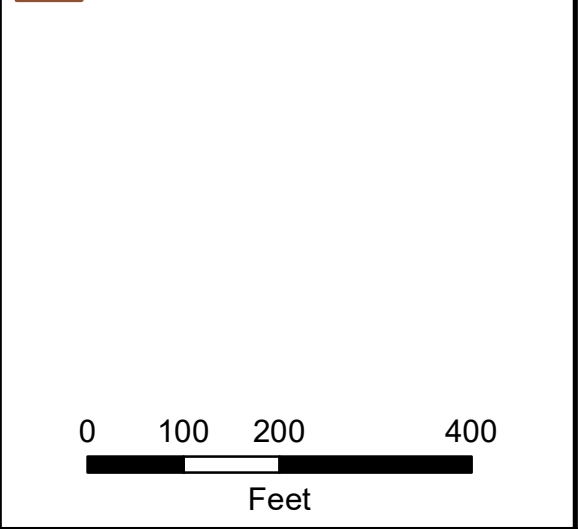
FIGURE 2 SHEET 18 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
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JOB NO.: 60702698	AECOM

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Legend

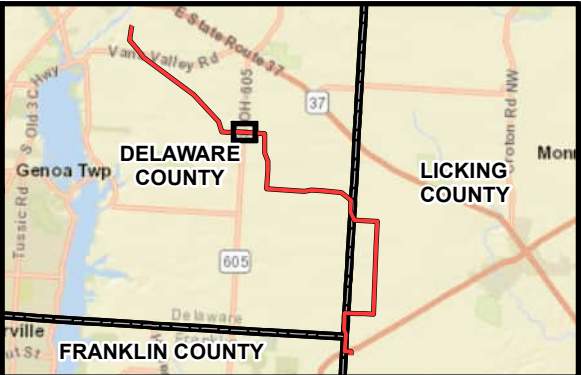
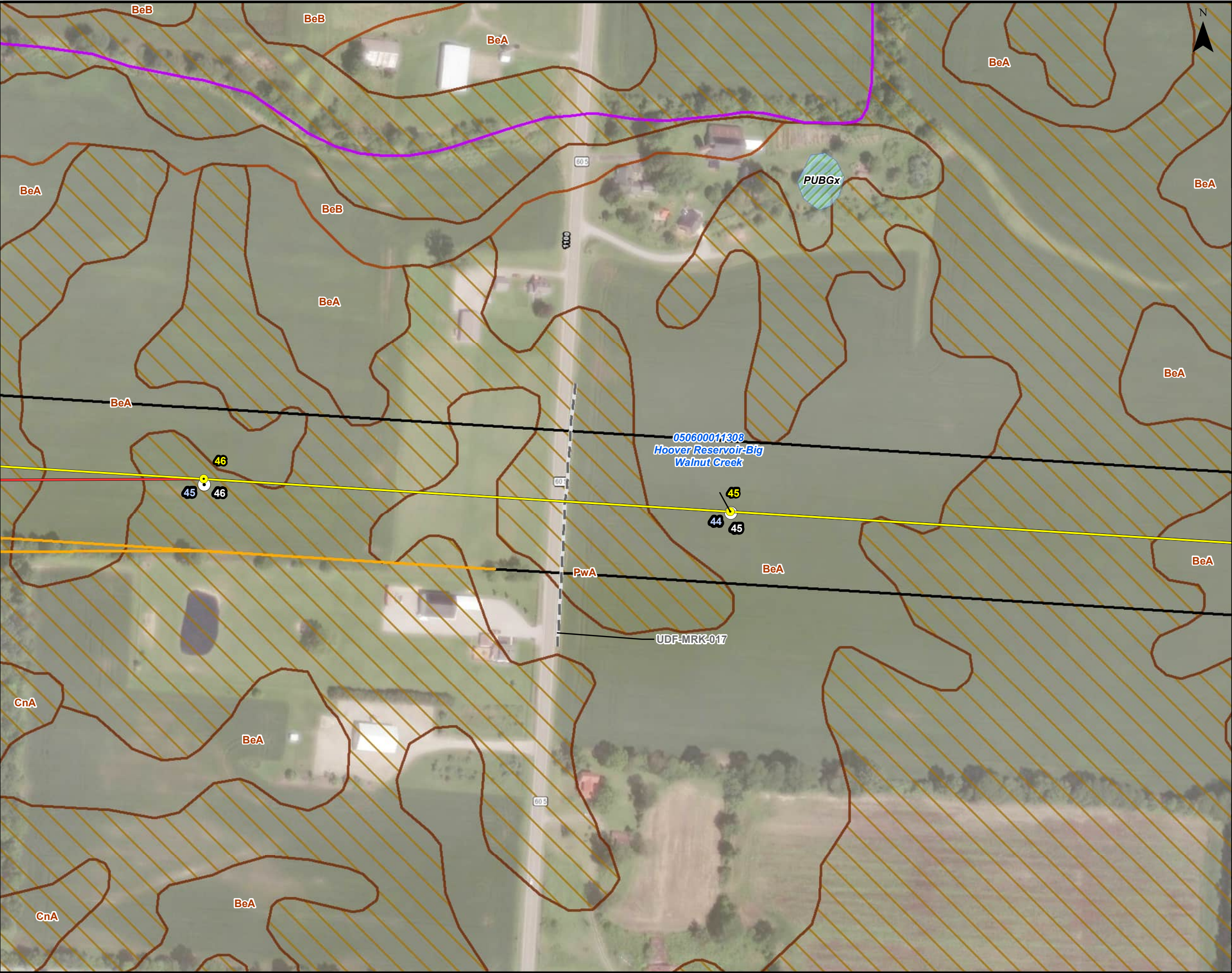
- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 19 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
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Date Saved: 2/7/2025
Document Path: X:\DCS\GIS\ArchMap_GeoDB_Proj\60702698_Vassell - Curley 345kV Transmission Line Project - Addendum 3\Fig 2.mxd



Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Upland Drainage Feature
- NHD Stream (USGS)
- Addendum 3 Survey Area
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

Soil Map Unit Description

- BeA - Bennington silt loam, 0 to 2 percent slopes
- PwA - Pewamo silty clay loam, 0 to 1 percent slopes

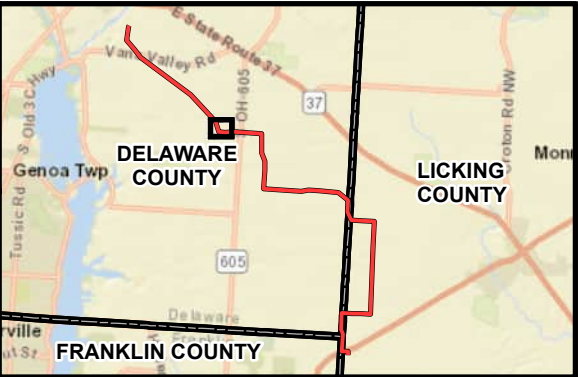
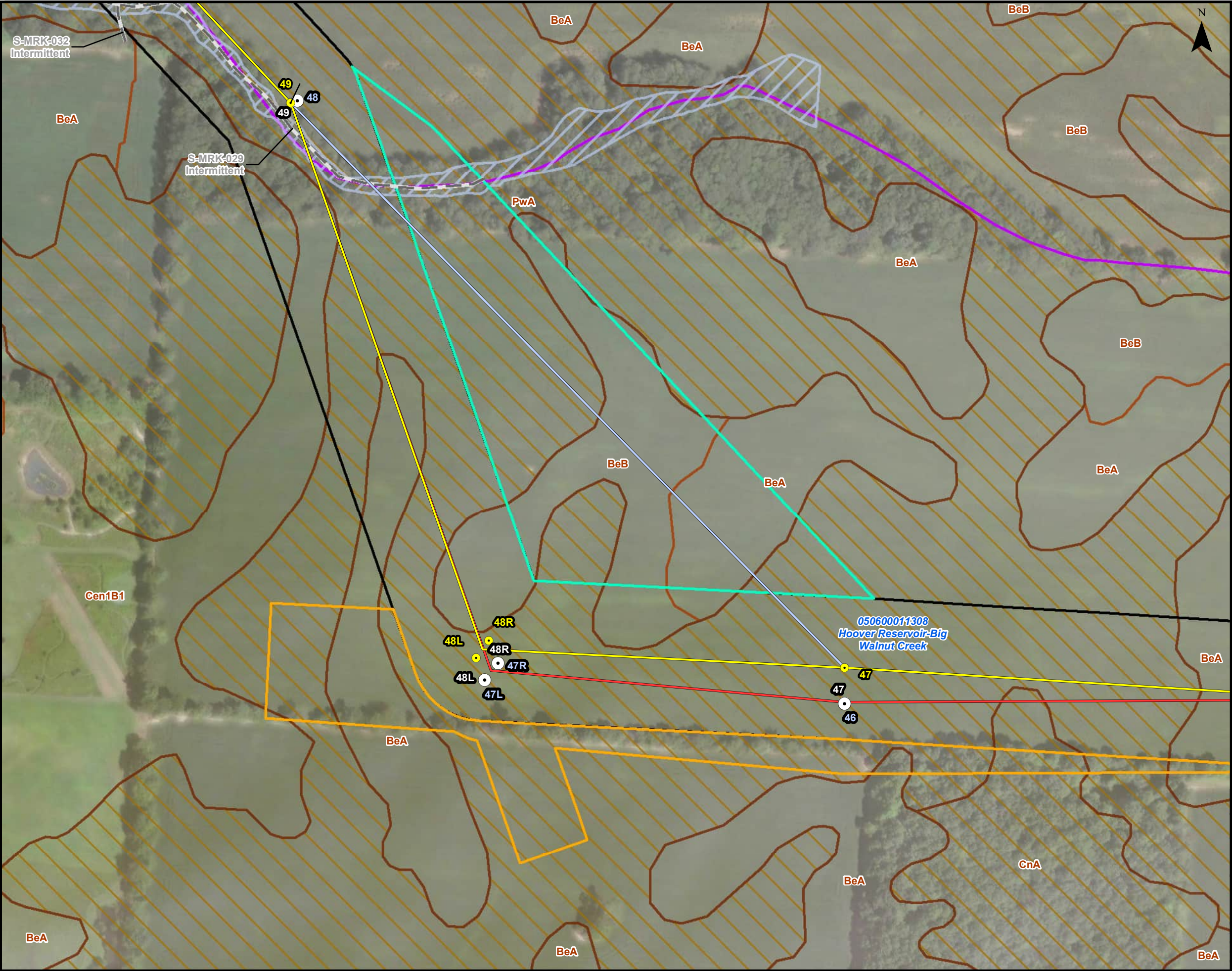
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Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2
SHEET 20 OF 28
SOIL MAP AND
NATIONAL WETLANDS INVENTORY MAP

DATE: 2/7/2025	1 INCH = 200 FEET
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Date Saved: 2/7/2025
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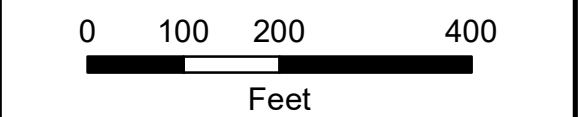


Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Potential Alternative
- Previously Delineated Intermittent Stream
- NHD Stream (USGS)
- Addendum 3 Survey Area
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- NFHL 100-Year Floodplain (FEMA)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

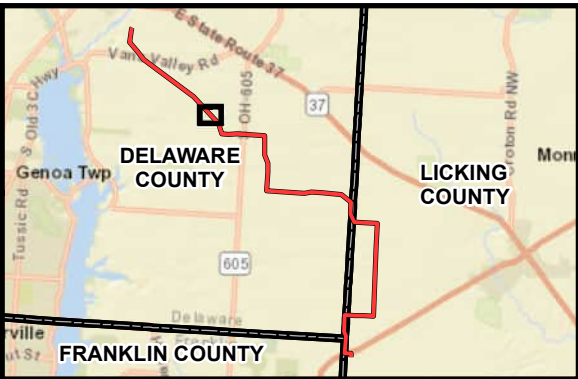
Soil Map Unit Description

BeA - Bennington silt loam, 0 to 2 percent slopes
Cen1B1 - Centerburg silt loam, 2 to 6 percent slopes
CnA - Condit silt loam, 0 to 1 percent slopes
PwA - Pewamo silty clay loam, 0 to 1 percent slopes

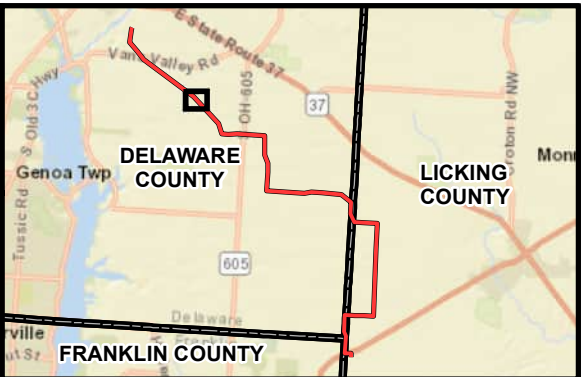


 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 21 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
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JOB NO.: 60702698	AECOM

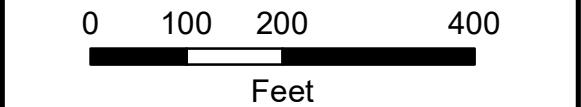


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Legend

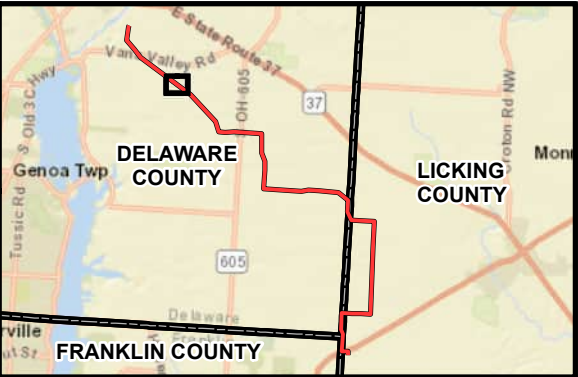
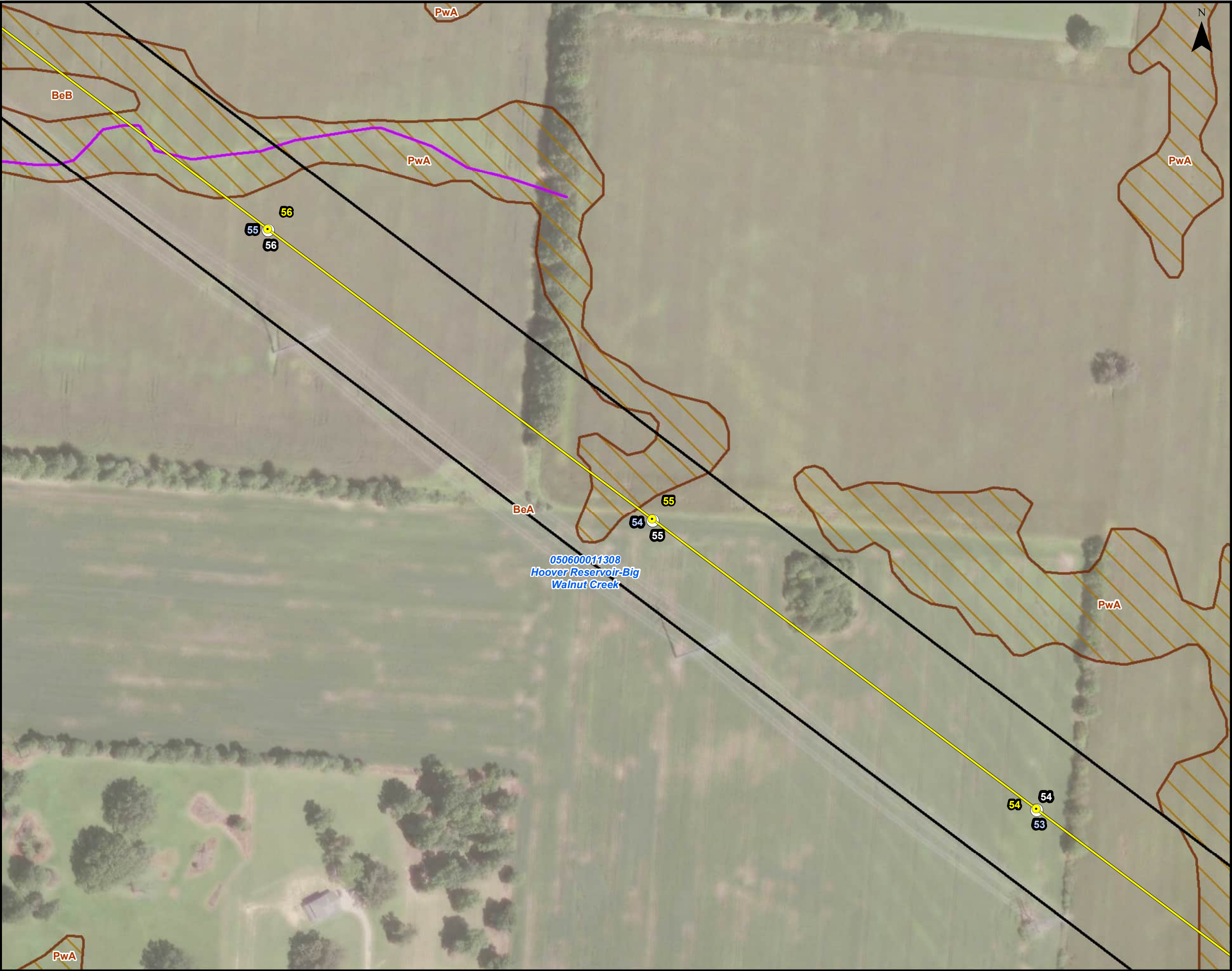
- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Culvert
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Upland Drainage Feature
- Previously Delineated Perennial Stream
- NHD Stream (USGS)
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- NHD Waterbody (USGS)
- NFHL 100-Year Floodplain (FEMA)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 23 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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Legend

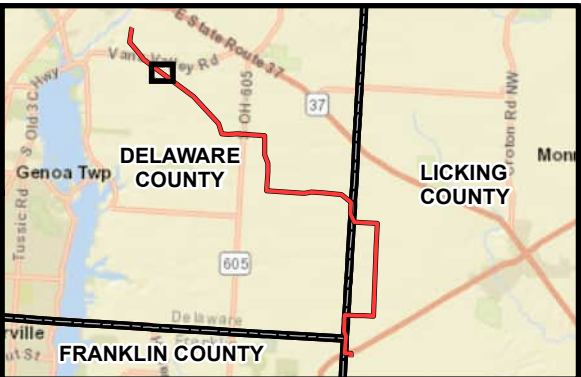
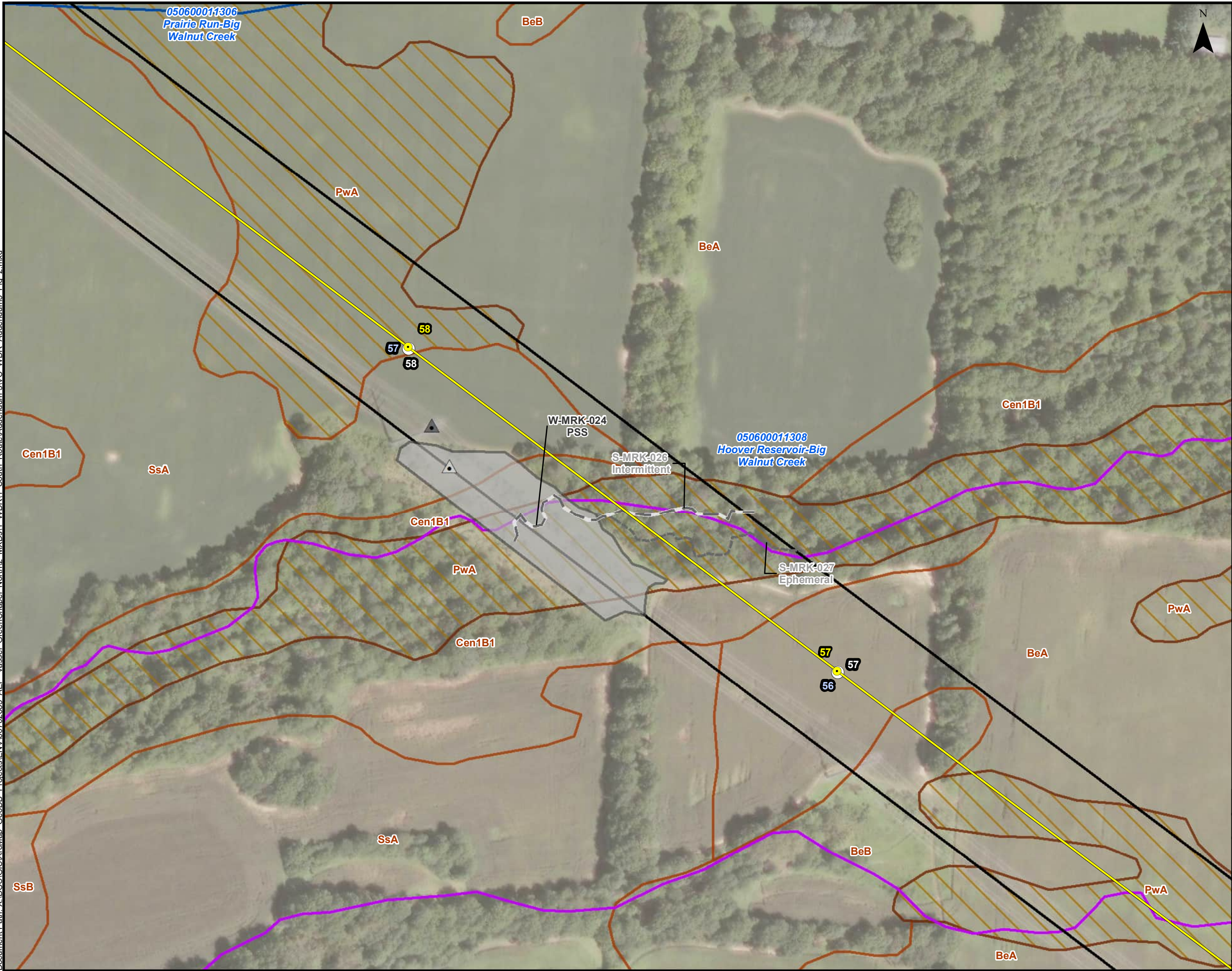
- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- NHD Stream (USGS)
- Project Survey Area - Original Report
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

0 100 200 400
Feet

 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

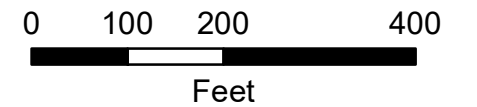
FIGURE 2 SHEET 24 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
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Date Saved: 2/7/2025
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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Ephemeral Stream
- Previously Delineated Intermittent Stream
- Previously Delineated PSS Wetland
- NHD Stream (USGS)
- Project Survey Area - Original Report
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

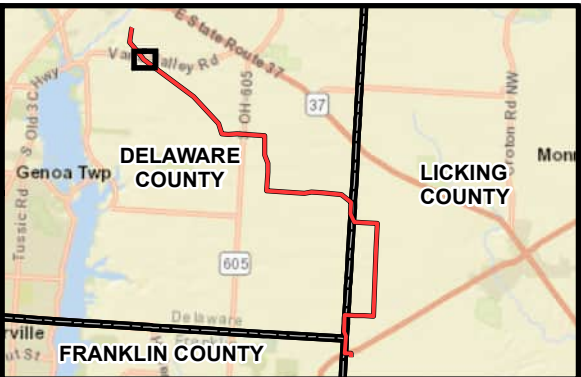
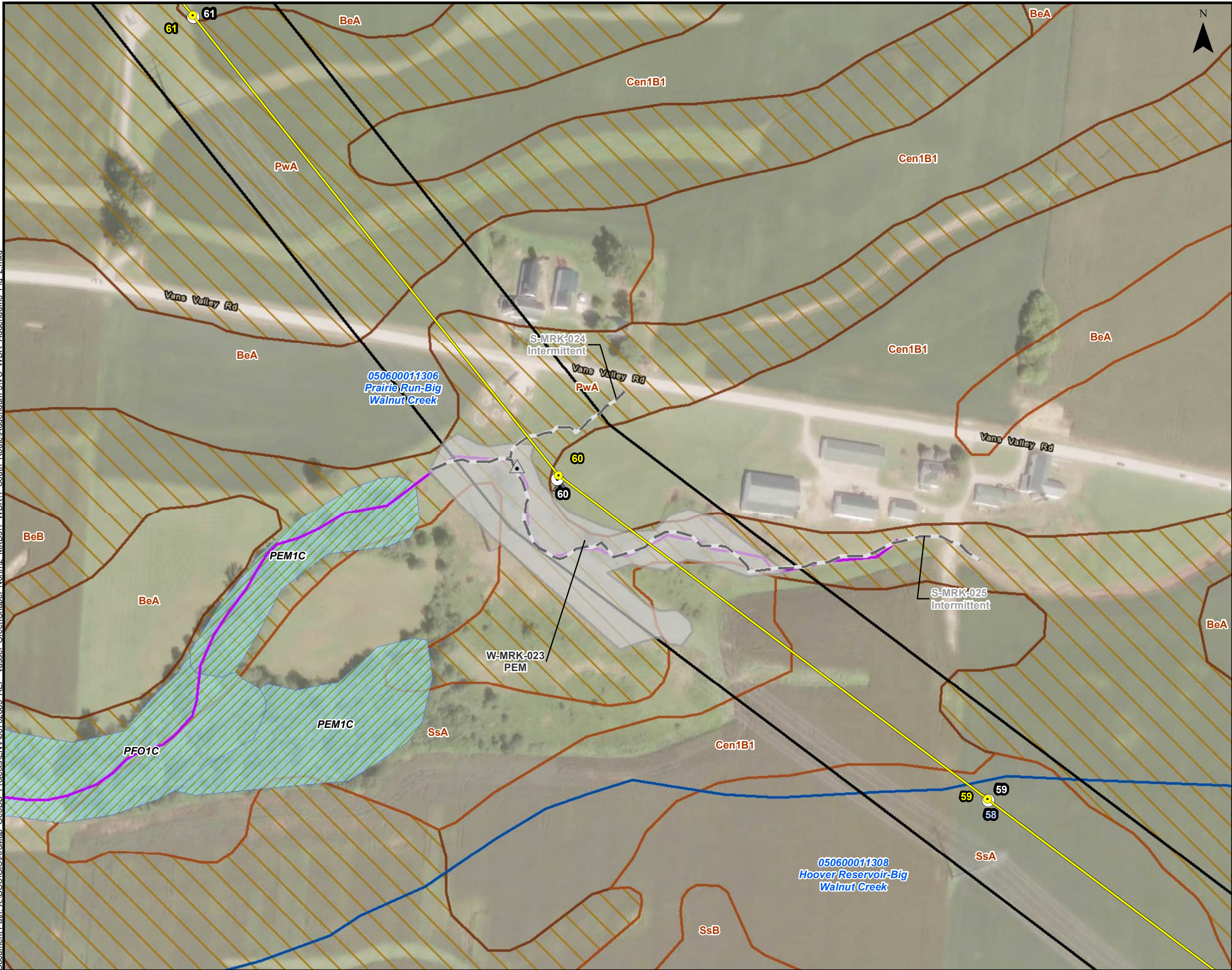


Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

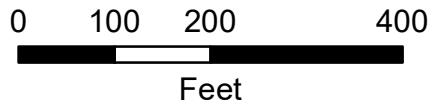
FIGURE 2
SHEET 25 OF 28
SOIL MAP AND
NATIONAL WETLANDS INVENTORY MAP

DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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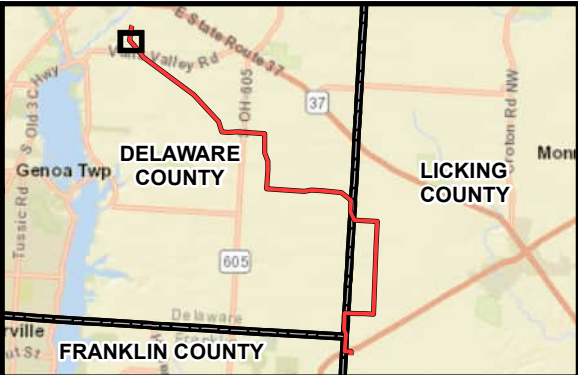
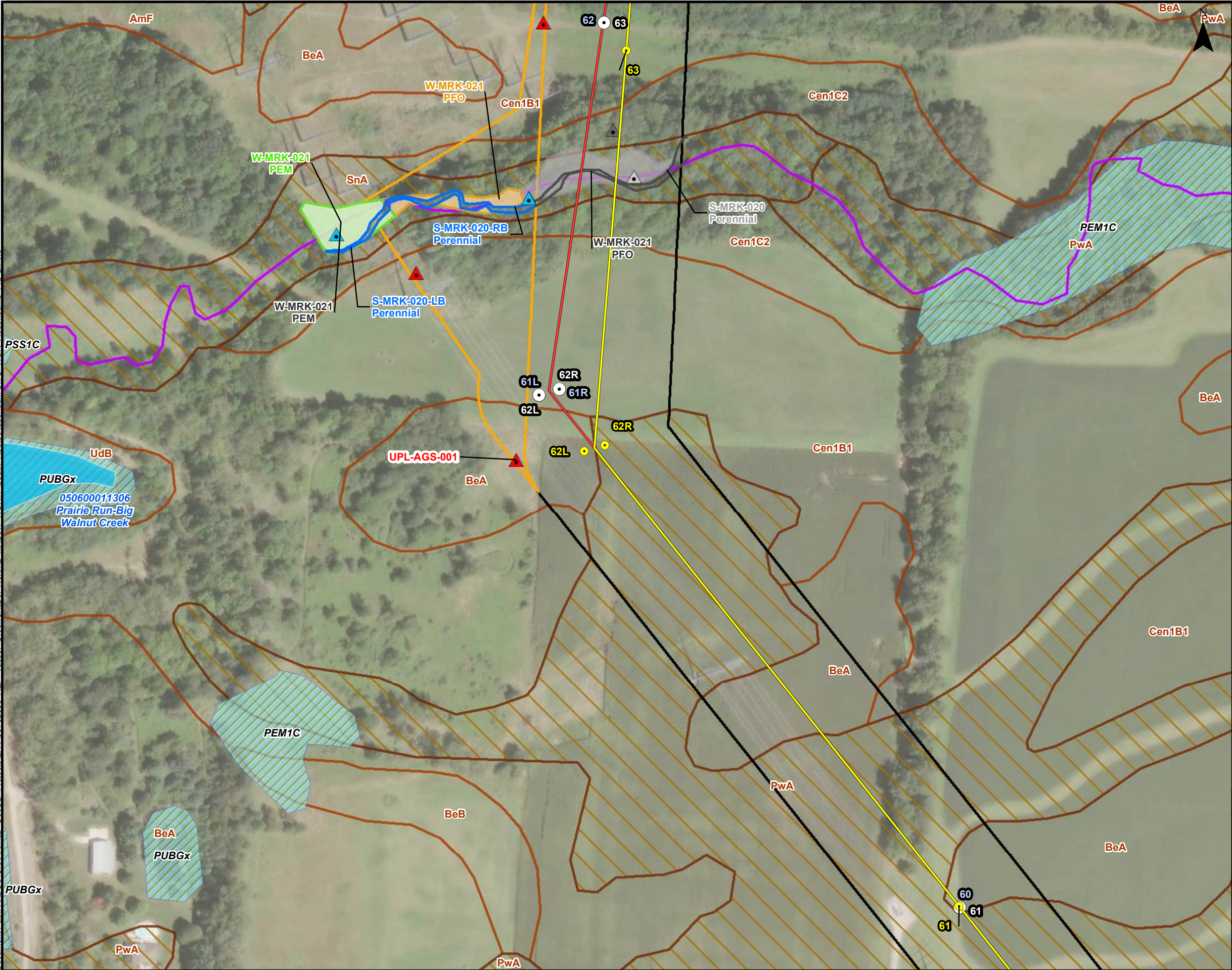
- Legend**
- Structure (Addendum 1)
 - Vassell - Curley 345kV Transmission Line (Addendum 1)
 - Proposed Structures
 - Proposed Alternative Structures
 - Vassell - Curley 345kV Transmission Line
 - Previously Delineated Wetland Data Point
 - Previously Delineated Upland Data Point
 - Previously Delineated Intermittent Stream
 - Previously Delineated PEM Wetland
 - NHD Stream (USGS)
 - Project Survey Area - Original Report
 - NWI Wetland (USFWS)
 - HUC 12 (USGS)
 - SSURGO Soil Map Unit (NRCS)
 - Hydic SSURGO Soil Map Unit (NRCS)



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 26 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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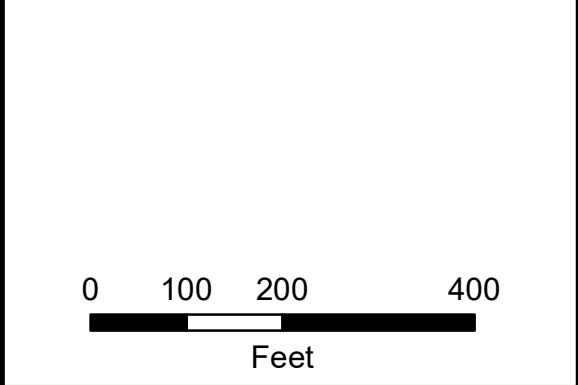


Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Wetland Data Point
- Upland Data Point
- Delineated Perennial Stream
- Delineated PEM Wetland
- Delineated PFO Wetland
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Addendum 3 Survey Area
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- NHD Waterbody (USGS)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

Soil Map Unit Description

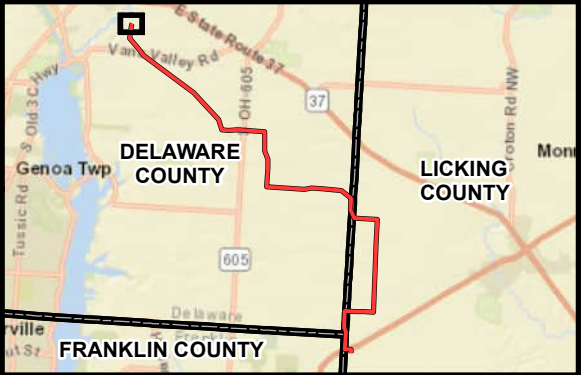
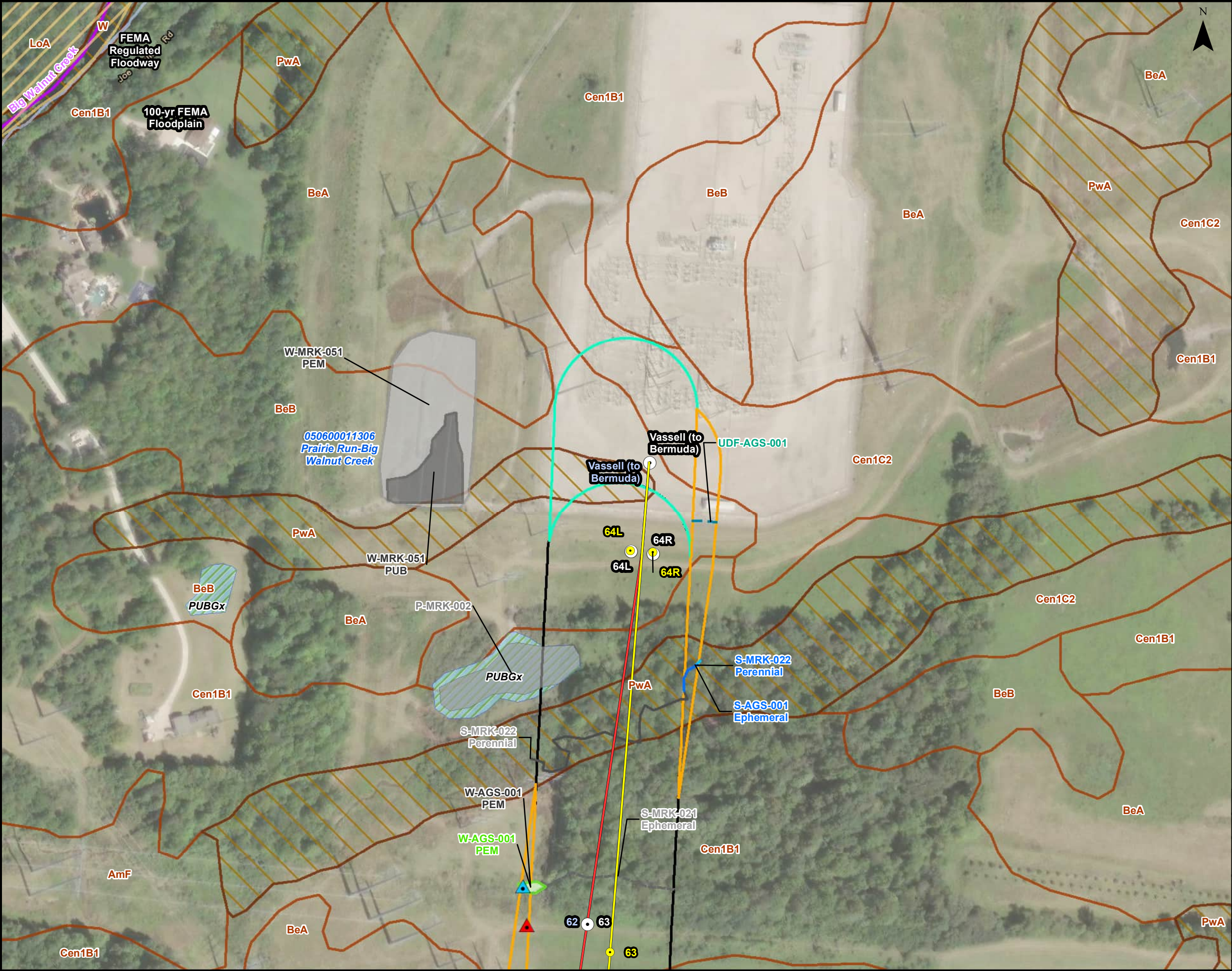
- BeA - Bennington silt loam, 0 to 2 percent slopes
- Cen1B1 - Centerburg silt loam, 2 to 6 percent slopes
- Cen1C2 - Centerburg silt loam, 6 to 12 percent slopes, eroded
- SnA - Sloan silt loam, till substratum, 0 to 2 percent slopes, occasionally flooded



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2 SHEET 27 OF 28 SOIL MAP AND NATIONAL WETLANDS INVENTORY MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
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JOB NO.: 60702698	AECOM

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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Wetland Data Point
- Upland Data Point
- Delineated Upland Drainage Feature
- Delineated Ephemeral Stream
- Delineated Perennial Stream
- Delineated PEM Wetland
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Ephemeral Stream
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Previously Delineated PUB Wetland
- Previously Delineated Pond
- NHD Stream (USGS)
- Addendum 3 Survey Area
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- NWI Wetland (USFWS)
- NFHL 100-Year Floodplain (FEMA)
- NFHL Floodway (FEMA)
- HUC 12 (USGS)
- SSURGO Soil Map Unit (NRCS)
- Hydric SSURGO Soil Map Unit (NRCS)

Soil Map Unit Description

BeB - Bennington silt loam, 2 to 6 percent slopes
Cen1B1 - Centerburg silt loam, 2 to 6 percent slopes
Cen1C2 - Centerburg silt loam, 6 to 12 percent slopes, eroded
PwA - Pewamo silty clay loam, 0 to 1 percent slopes

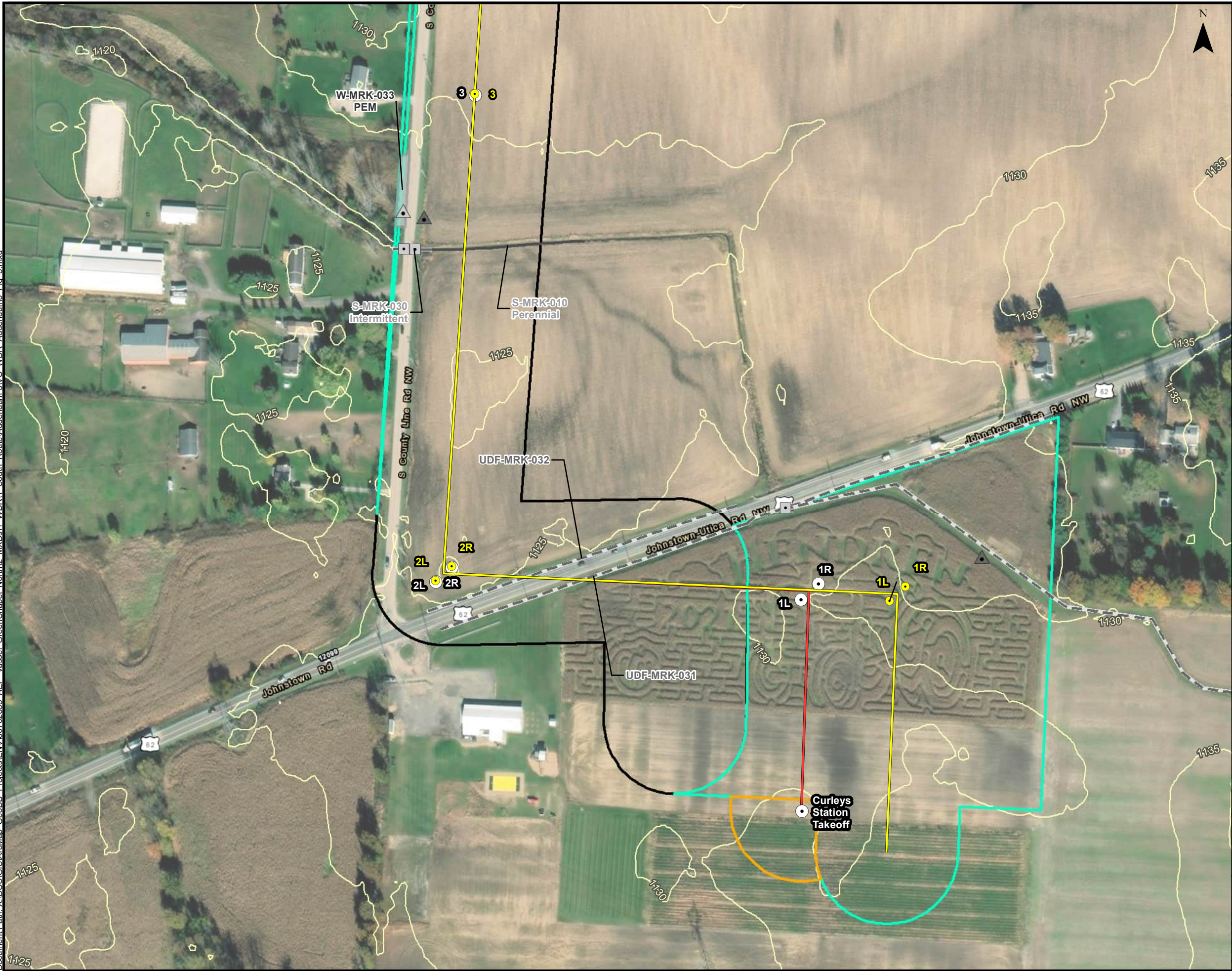
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Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 2
SHEET 28 OF 28
SOIL MAP AND
NATIONAL WETLANDS INVENTORY MAP

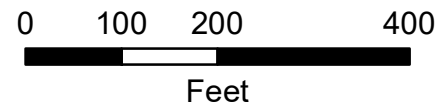
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Culvert
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Upland Drainage Feature
- Previously Delineated Intermittent Stream
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Contour (5-Ft)
- Addendum 3 Survey Area
- Addendum 1 Survey Area
- Project Survey Area - Original Report



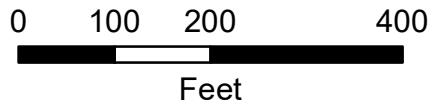
Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3 SHEET 1 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
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CREATED BY: CJT	CHECKED BY: BM
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Legend

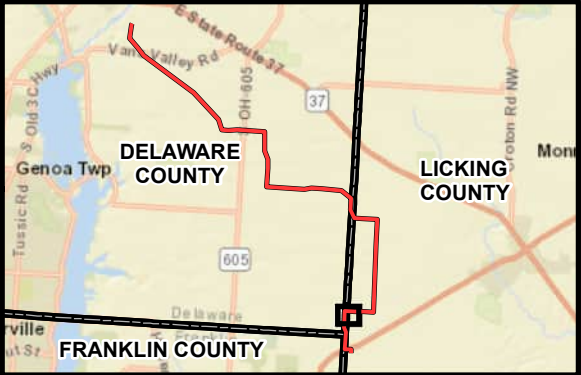
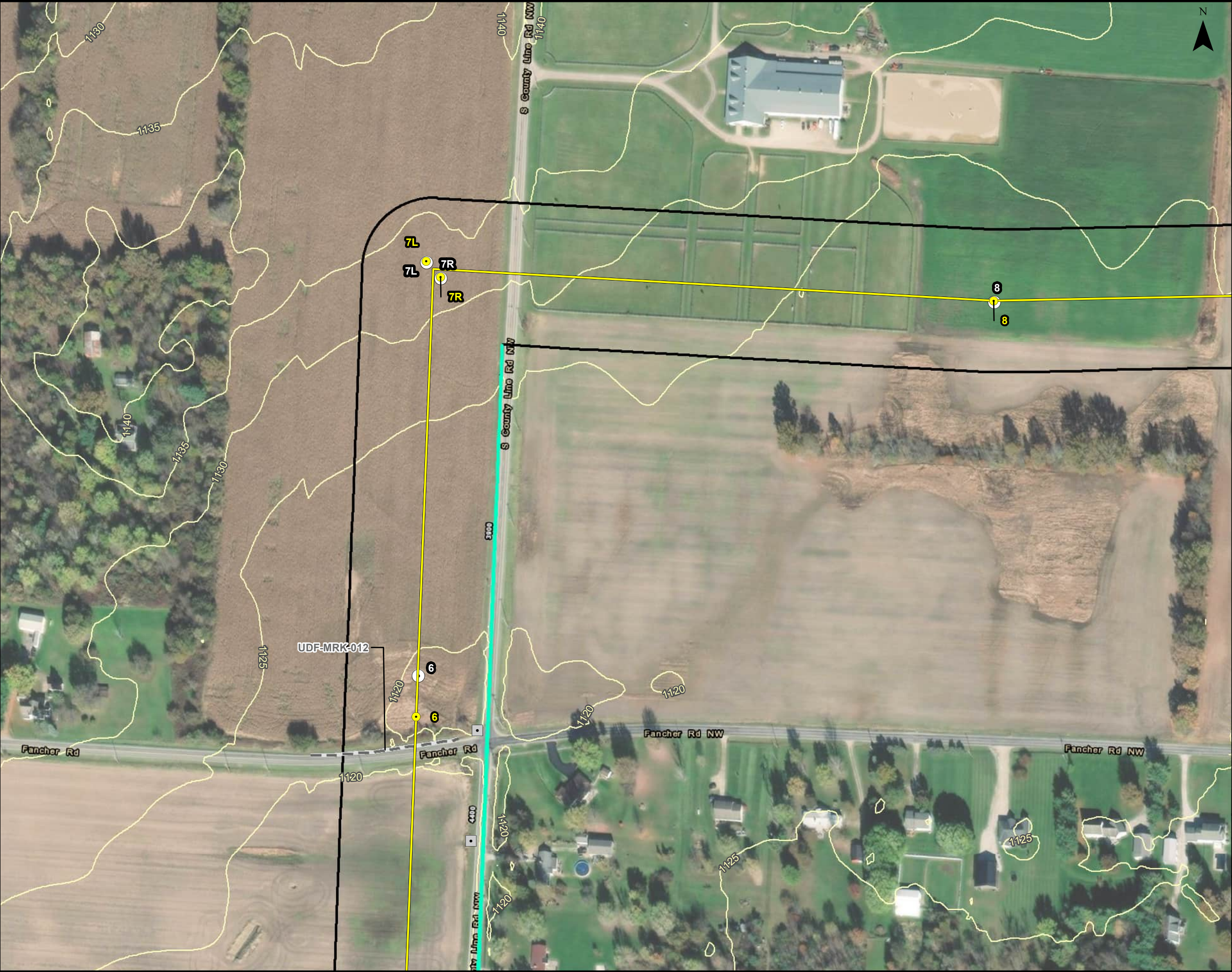
- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Vassell - Curley 345kV Transmission Line
- NHD Stream (USGS)
- Contour (5-Ft)
- Addendum 1 Survey Area
- Project Survey Area - Original Report



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

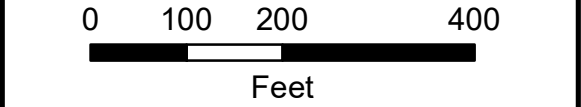
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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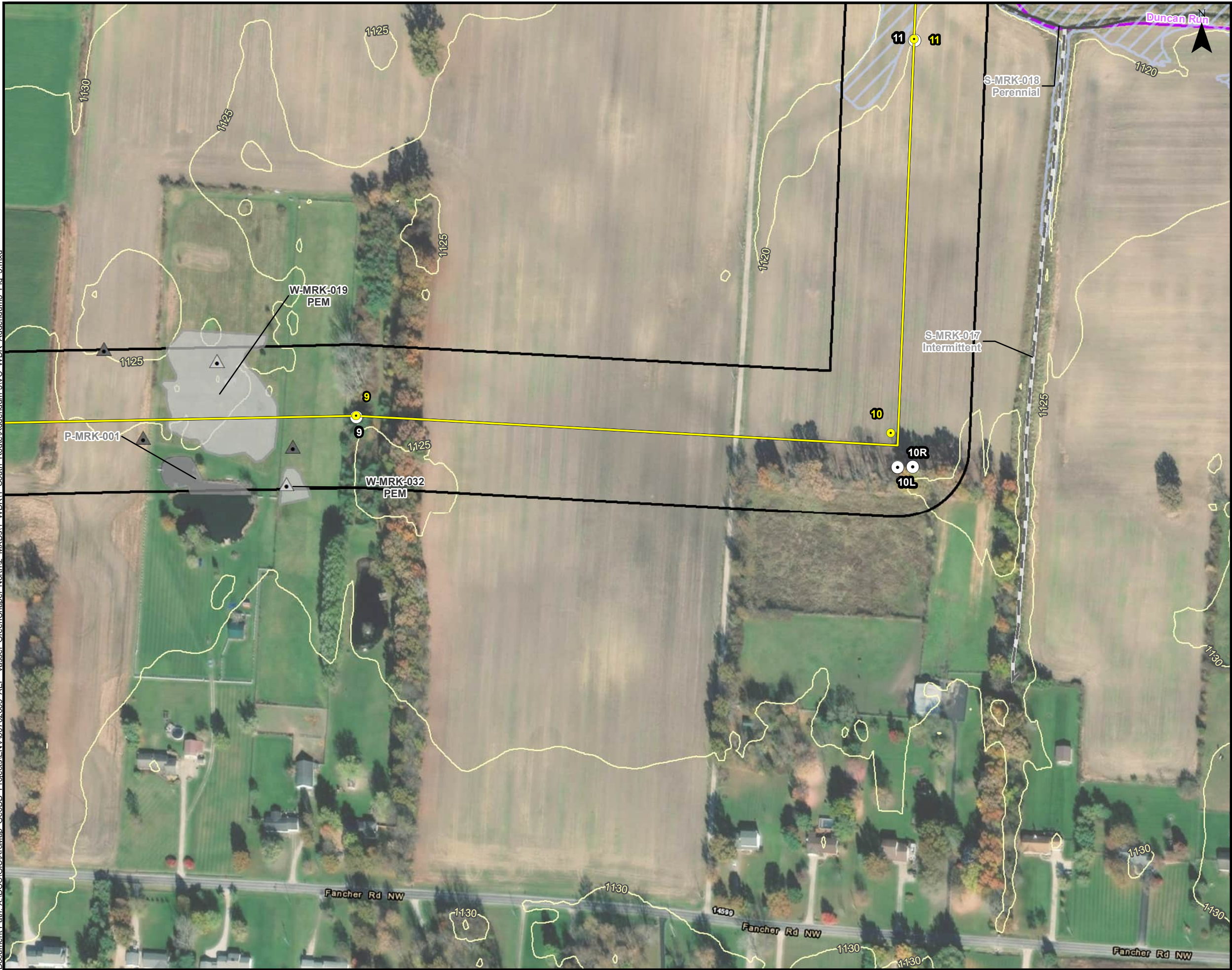
- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Culvert
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Upland Drainage Feature
- Contour (5-Ft)
- Addendum 1 Survey Area
- Project Survey Area - Original Report



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

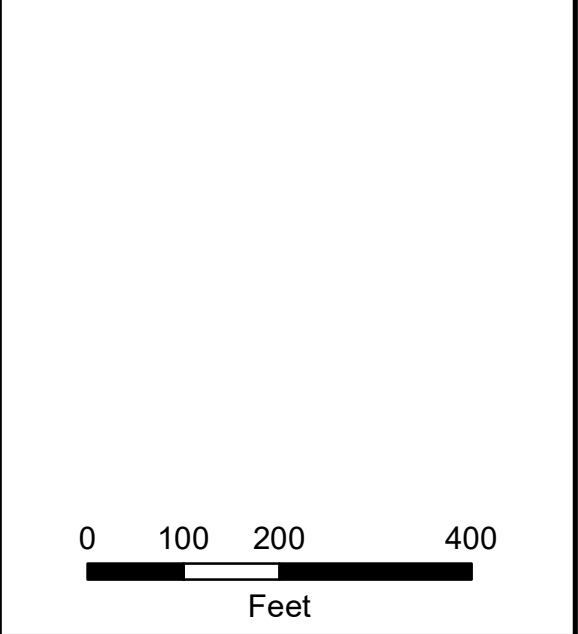
FIGURE 3 SHEET 3 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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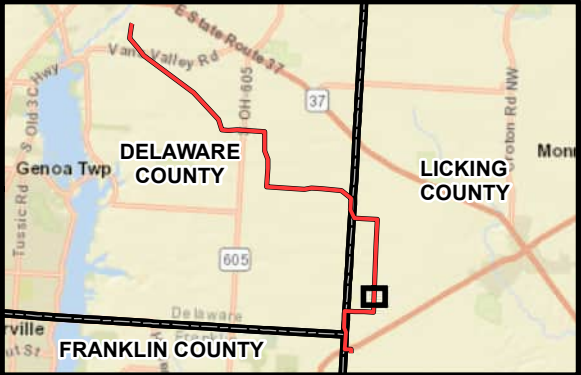
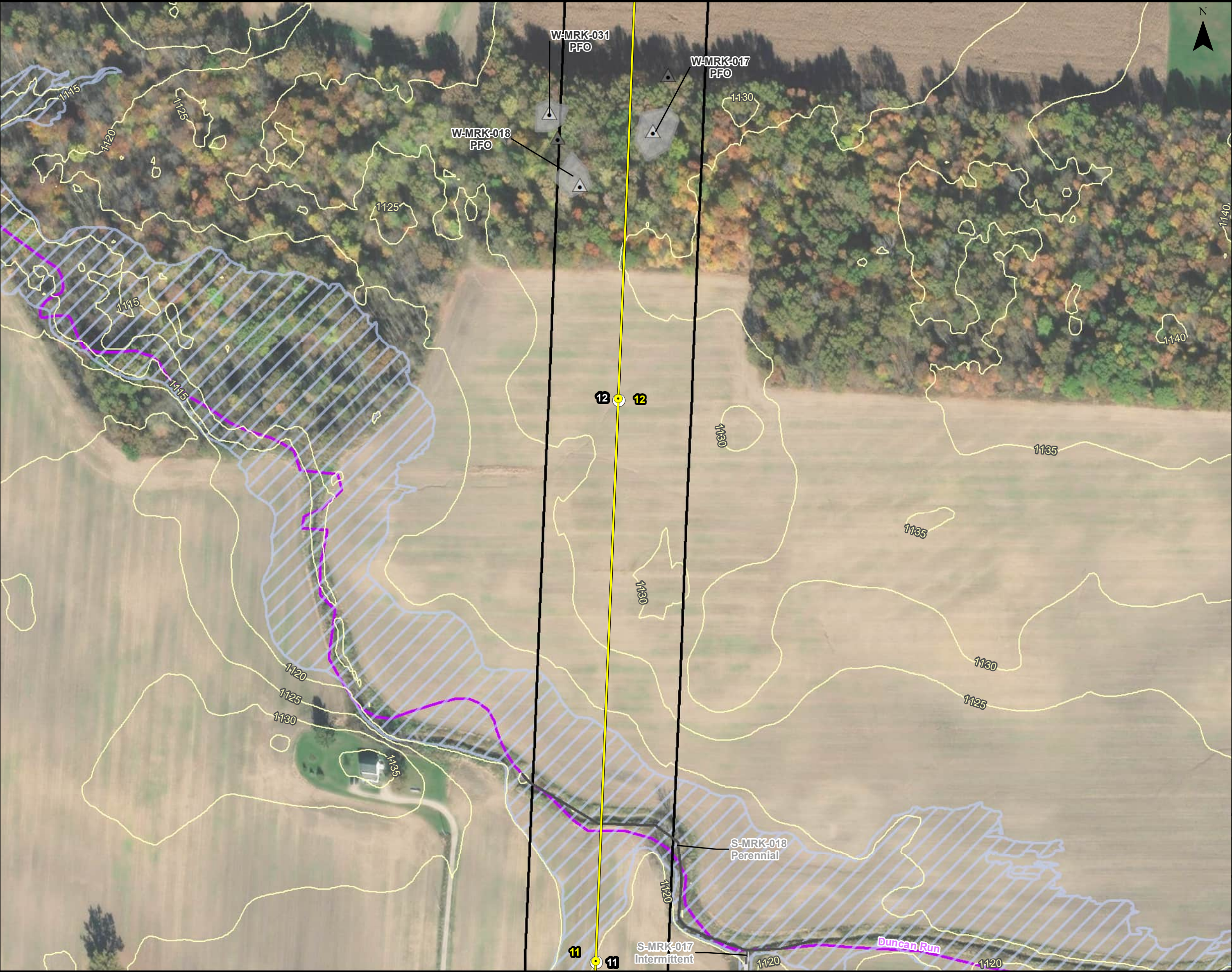
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Intermittent Stream
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Previously Delineated Pond
- NHD Stream (USGS)
- Contour (5-Ft)
- Project Survey Area - Original Report
- NFHL 100-Year Floodplain (FEMA)



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

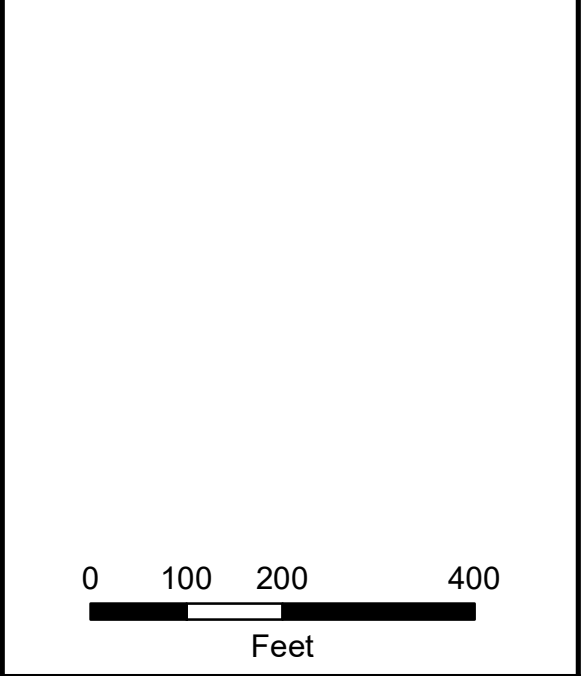
FIGURE 3 SHEET 4 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Intermittent Stream
- Previously Delineated Perennial Stream
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Contour (5-Ft)
- Project Survey Area - Original Report
- NFHL 100-Year Floodplain (FEMA)

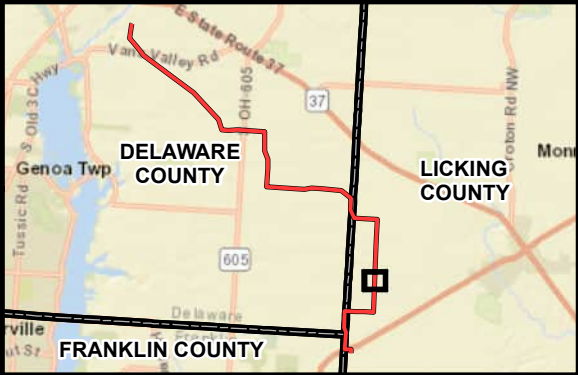


Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

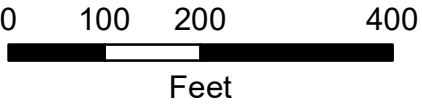
FIGURE 3
SHEET 5 OF 28
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

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Date Saved: 2/7/2025
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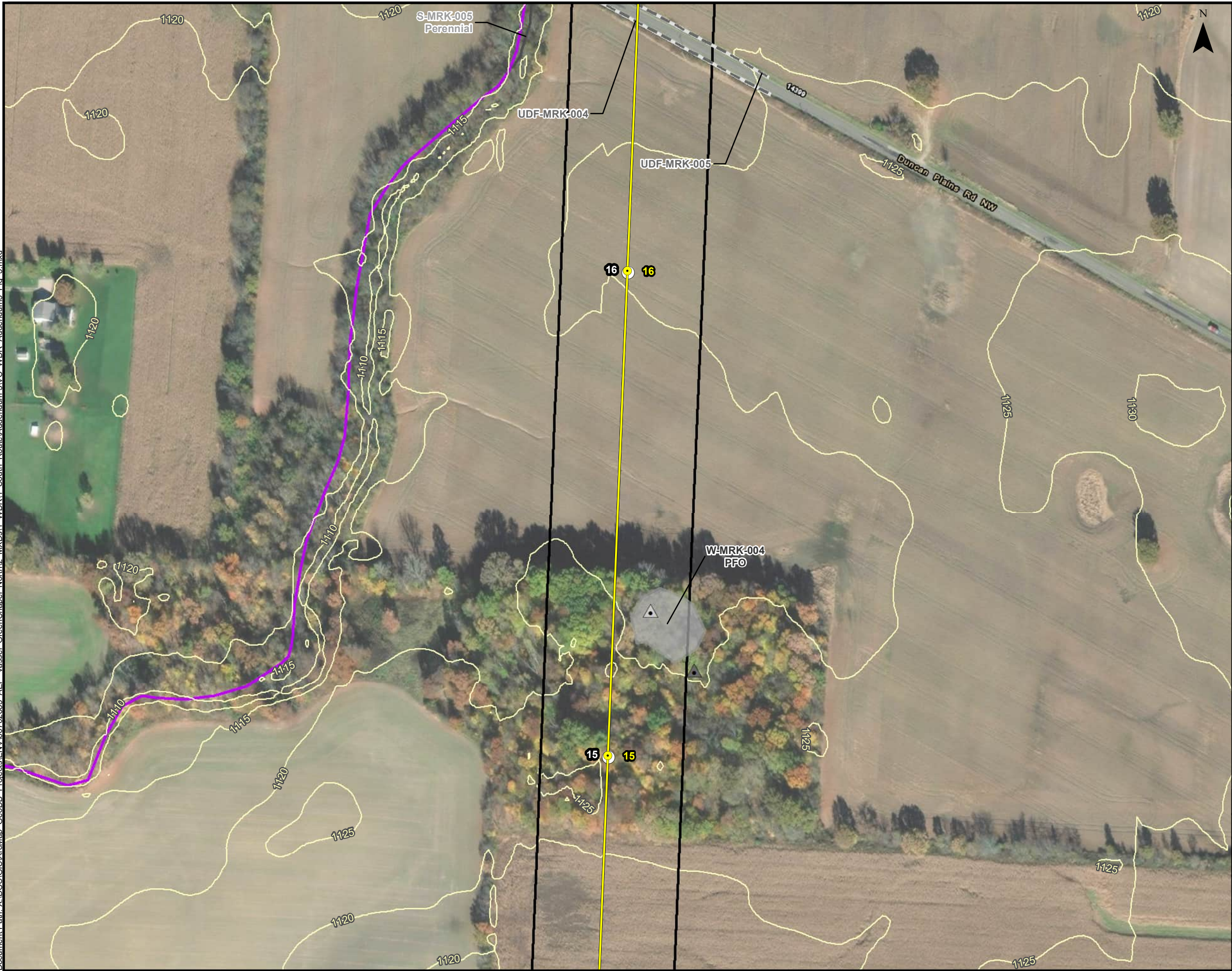
- Legend**
- Structure (Addendum 1)
 - Vassell - Curley 345kV Transmission Line (Addendum 1)
 - Proposed Structures
 - Vassell - Curley 345kV Transmission Line
 - Contour (5-Ft)
 - Project Survey Area - Original Report



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

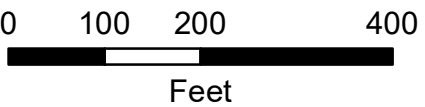
FIGURE 3 SHEET 6 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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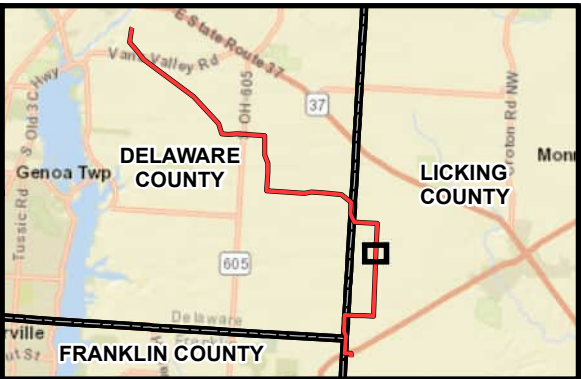
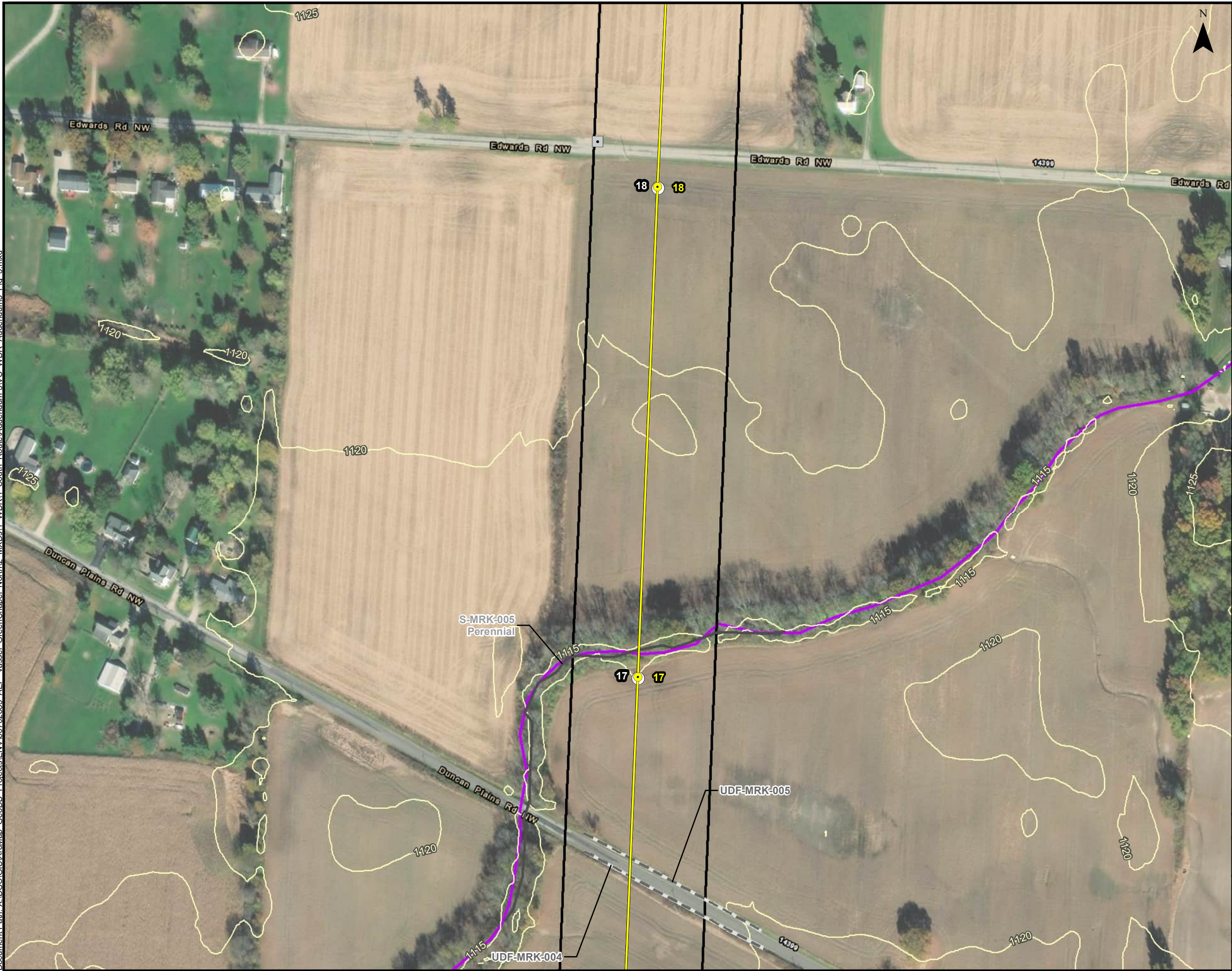
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Upland Drainage Feature
- Previously Delineated Perennial Stream
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Contour (5-Ft)
- Project Survey Area - Original Report



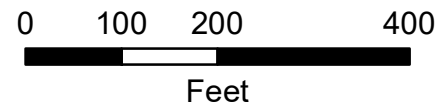
 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3 SHEET 7 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
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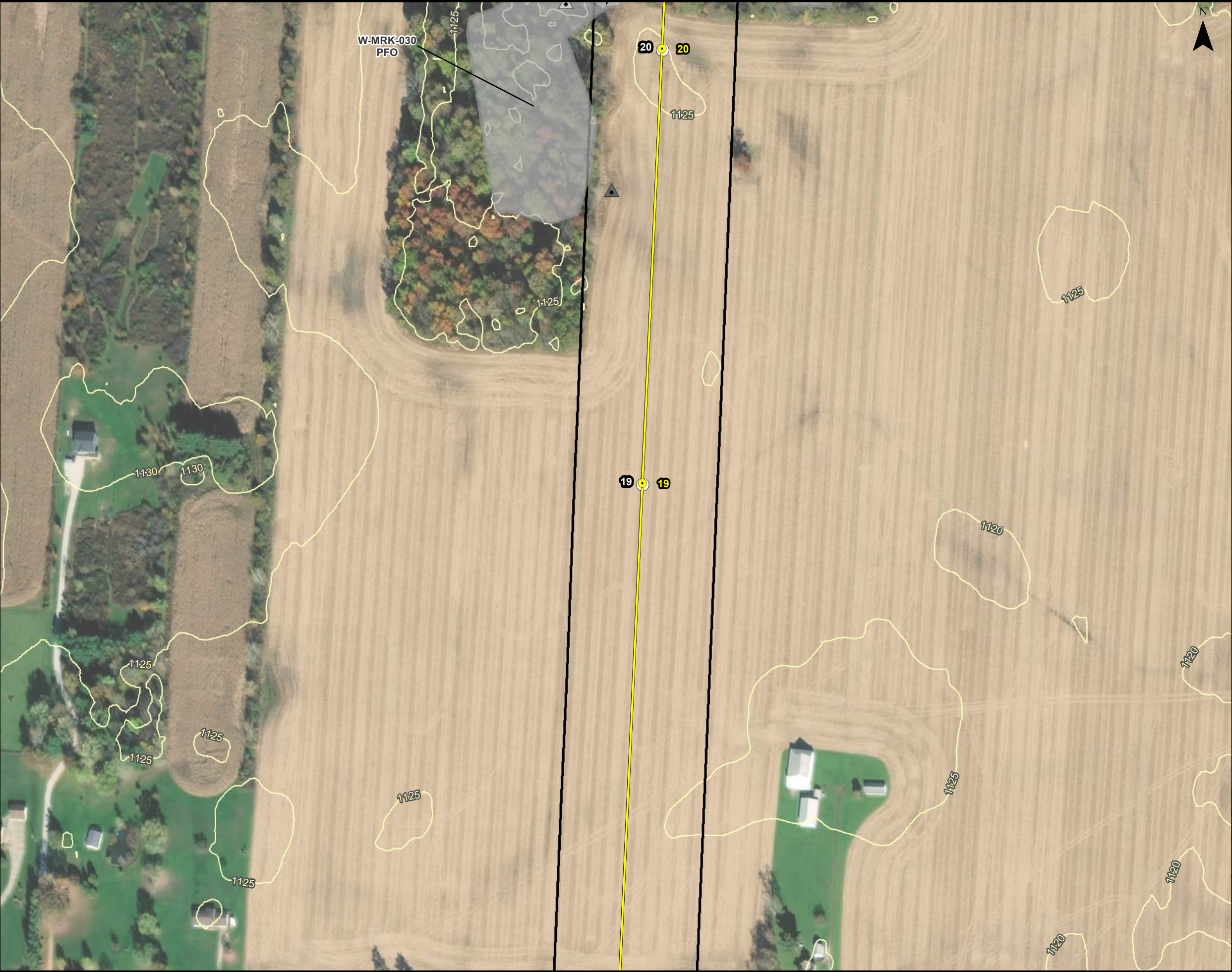
- Legend**
- Structure (Addendum 1)
 - Vassell - Curley 345kv Transmission Line (Addendum 1)
 - Proposed Structures
 - Culvert
 - Vassell - Curley 345kv Transmission Line
 - Previously Delineated Upland Drainage Feature
 - Previously Delineated Perennial Stream
 - NHD Stream (USGS)
 - Contour (5-Ft)
 - Project Survey Area - Original Report



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

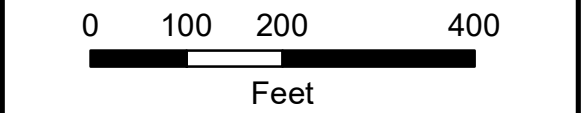
FIGURE 3 SHEET 8 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
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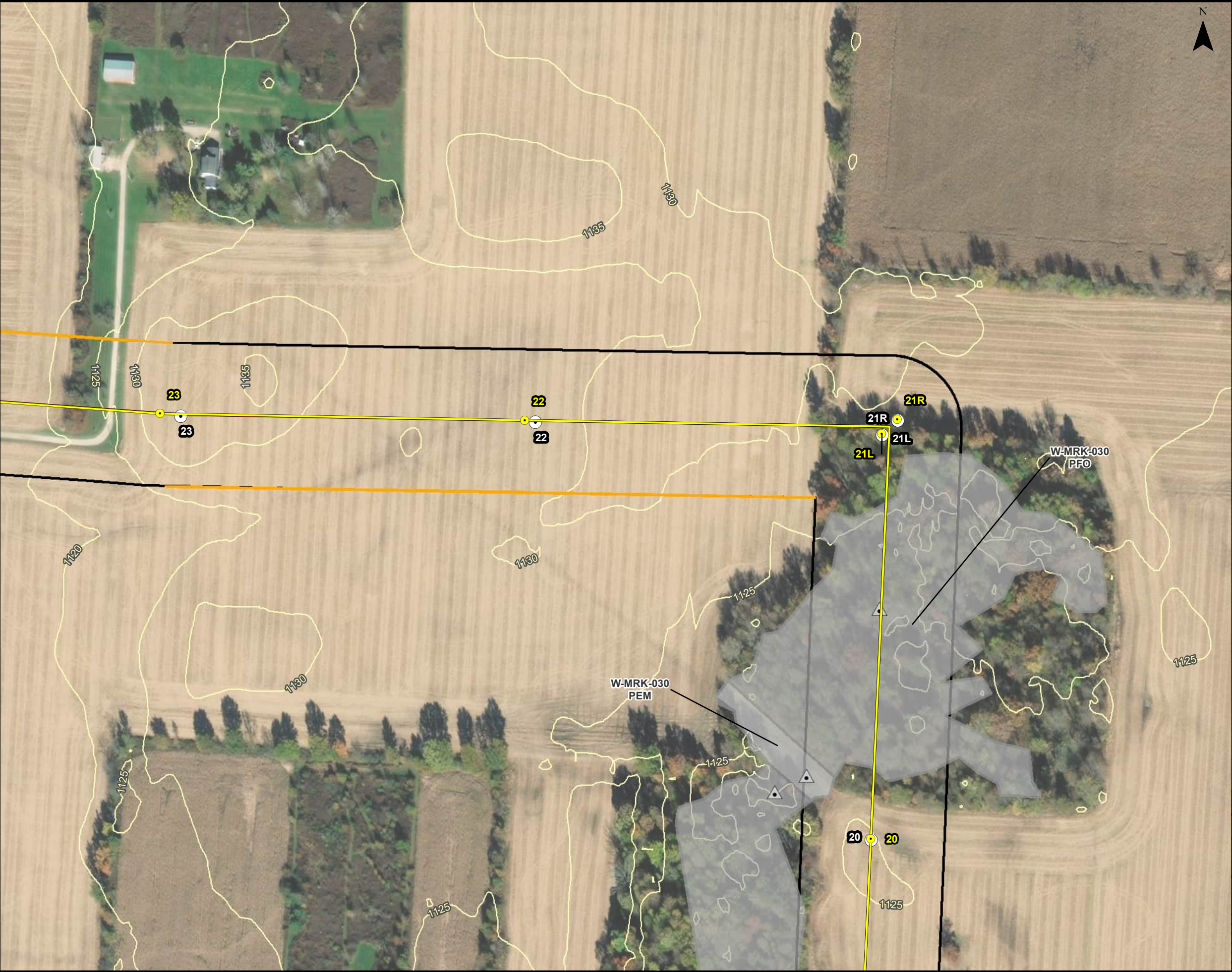
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated PEM Wetland
- Previously Delineated PFO Wetland
- Contour (5-Ft)
- Project Survey Area - Original Report



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

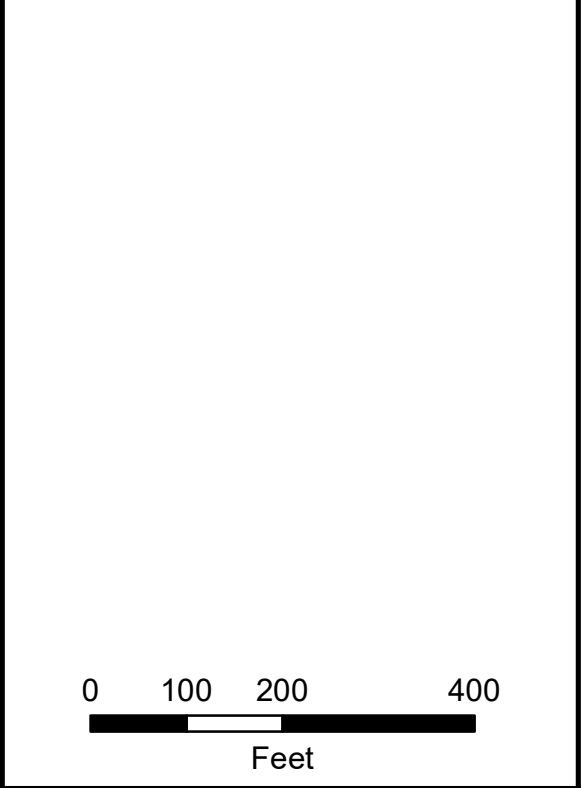
FIGURE 3 SHEET 9 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
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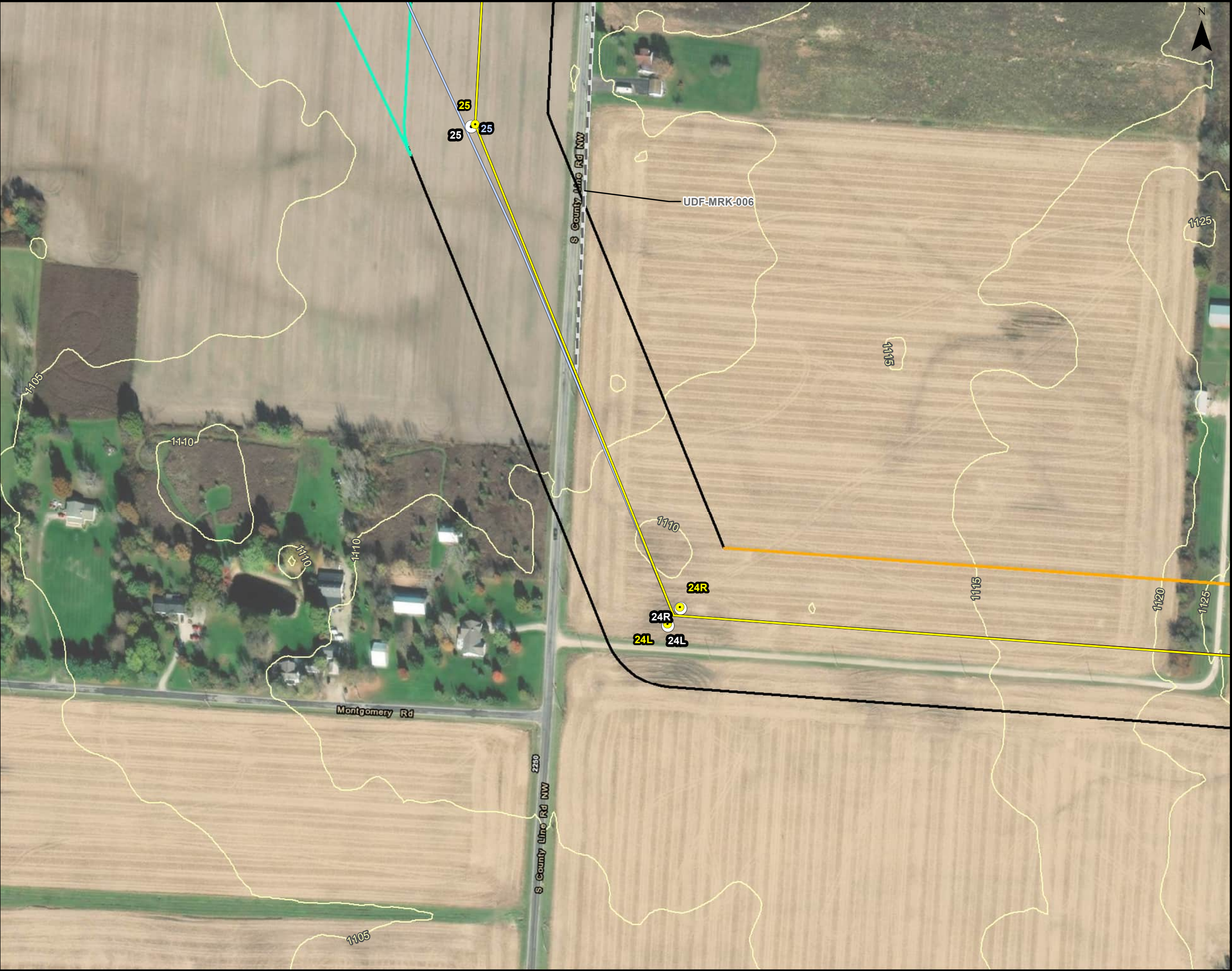
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated PEM Wetland
- Previously Delineated PFO Wetland
- Contour (5-Ft)
- Addendum 3 Survey Area
- Project Survey Area - Original Report



Vassel - Curley 345 kV
Transmission Line Project
Addendum 3

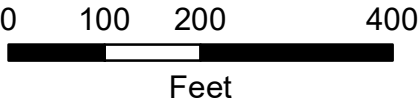
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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Potential Alternative
- Previously Delineated Upland Drainage Feature
- Contour (5-Ft)
- Addendum 3 Survey Area
- Addendum 1 Survey Area
- Project Survey Area - Original Report



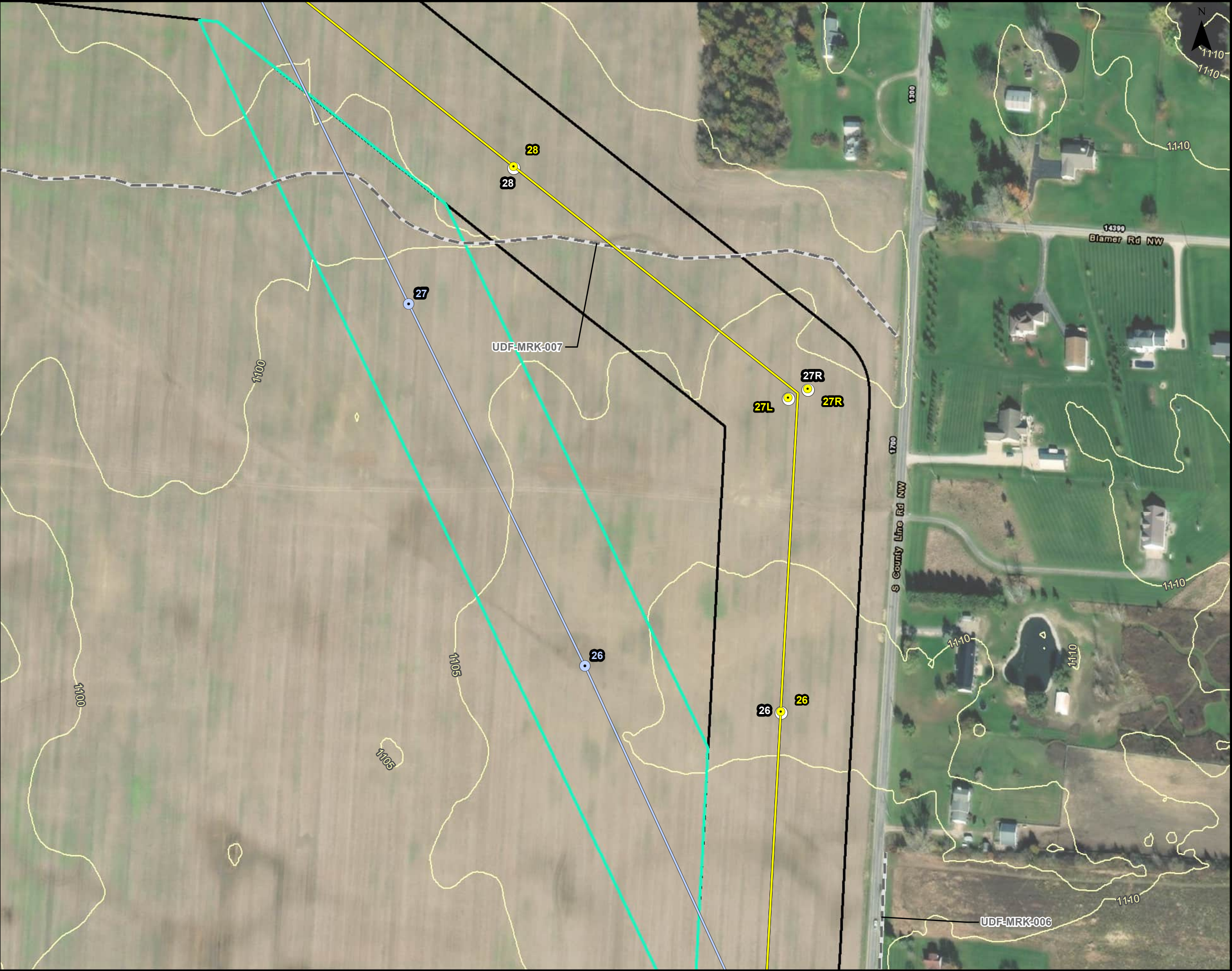


Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3
SHEET 11 OF 28
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

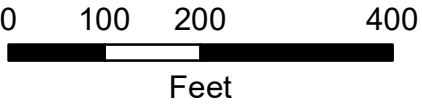
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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Potential Alternative
- Previously Delineated Upland Drainage Feature
- Contour (5-Ft)
- Addendum 1 Survey Area
- Project Survey Area - Original Report

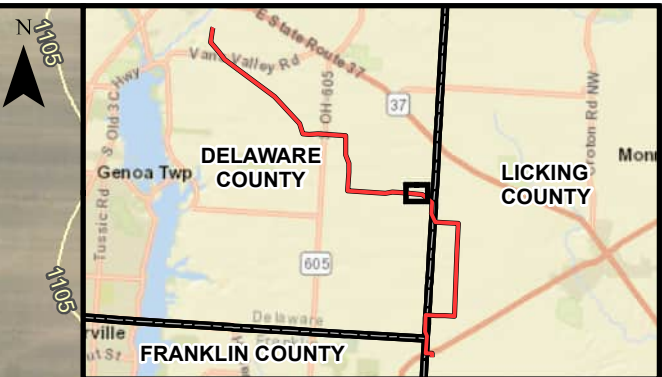




Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

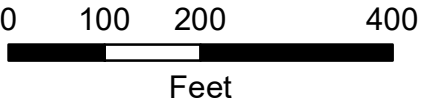
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Legend

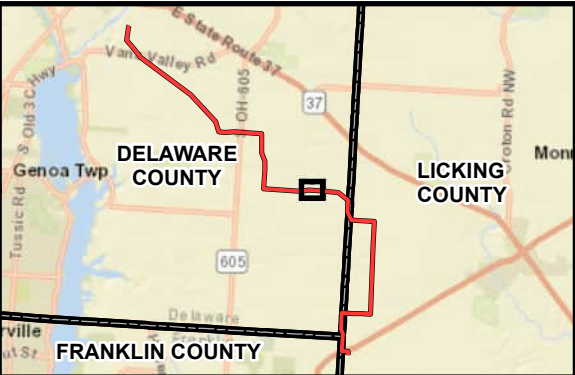
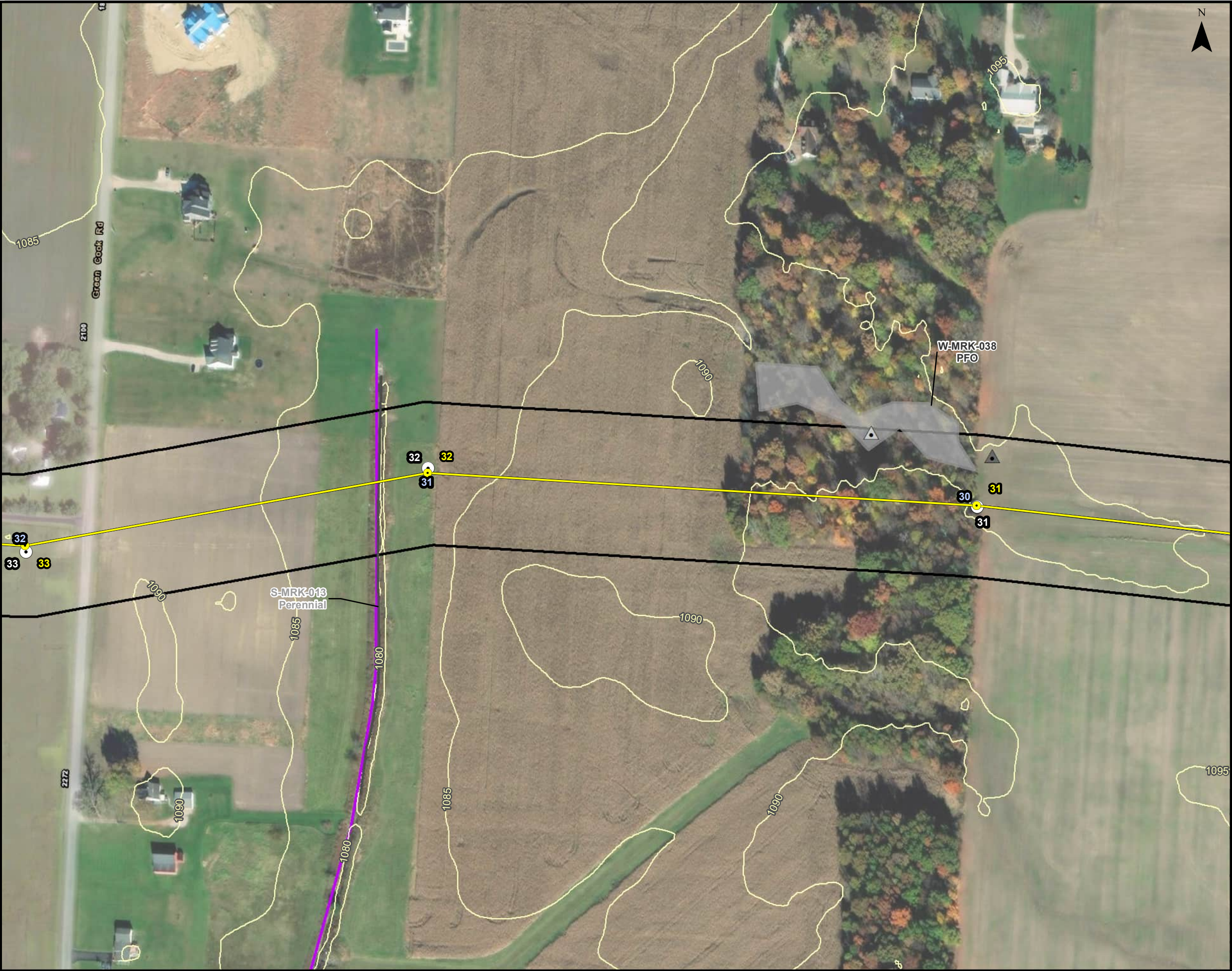
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line
- Potential Alternative
- Previously Delineated Upland Drainage Feature
- Contour (5-Ft)
- Addendum 1 Survey Area
- Project Survey Area - Original Report



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

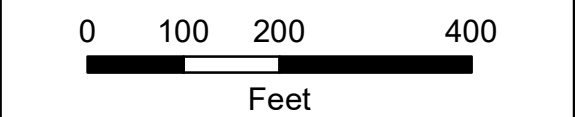
FIGURE 3 SHEET 13 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
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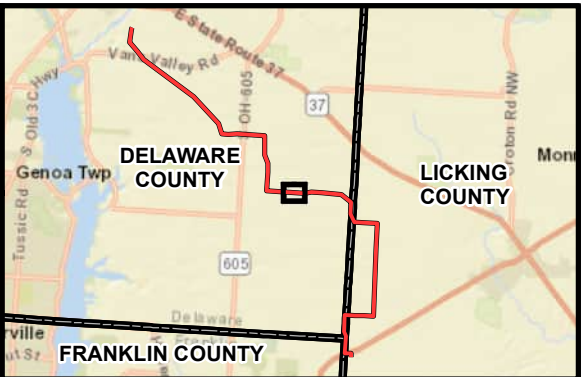
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line
- Potential Alternative
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Perennial Stream
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Contour (5-Ft)
- Project Survey Area - Original Report



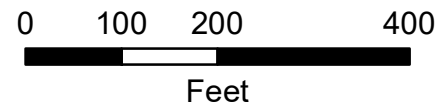
 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3 SHEET 14 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
Document Path: X:\DCS\GIS\ArchMap_GeoDB_Proj\ENVI\60702685_AEP_Vassel_GreenChapel_North\2_MXD\11_WDR\1_South_Route\Addendum 3\VC_WDR_Addendum3_Fig_3.mxd



- Legend**
- Structure (Addendum 1)
 - Vassell - Curley 345kV Transmission Line (Addendum 1)
 - Proposed Structures
 - Proposed Alternative Structures
 - Vassell - Curley 345kV Transmission Line
 - Previously Delineated Wetland Data Point
 - Previously Delineated PFO Wetland
 - Contour (5-Ft)
 - Project Survey Area - Original Report



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3
SHEET 15 OF 28
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

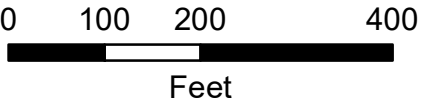
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CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
Document Path: X:\DCS\GIS\ArchMap_GeoDB_Proj\GIS\ArchMap_North2_MXD\11_WDR11_South_Route\Addendum 3\VC_WDR_Addendum3_Fig_3.mxd



Legend

- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated PEM Wetland
- Previously Delineated PFO Wetland
- Contour (5-Ft)
- Project Survey Area - Original Report



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

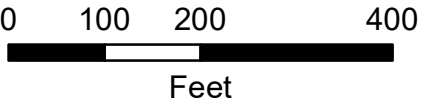
FIGURE 3 SHEET 16 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM


Date Saved: 2/7/2025
Document Path: X:\DCS\GIS\ArchMap_GeoDB_Proj\GIS\ENV\60702685_AEP_Vassel_GreenChapel_North\2_MXD\11_WDR\1_South_Route\Addendum 3\VC_WDR_Addendum3_Fig_3.mxd



Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated PFO Wetland
- Contour (5-Ft)
- Addendum 1 Survey Area
- Project Survey Area - Original Report





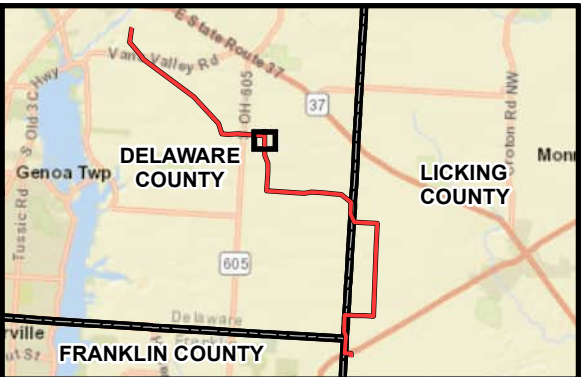
Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3
SHEET 17 OF 28
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

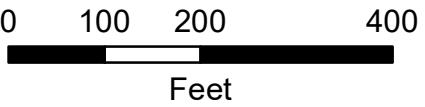



Date Saved: 2/7/2025
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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Contour (5-Ft)
- Addendum 1 Survey Area
- Project Survey Area - Original Report



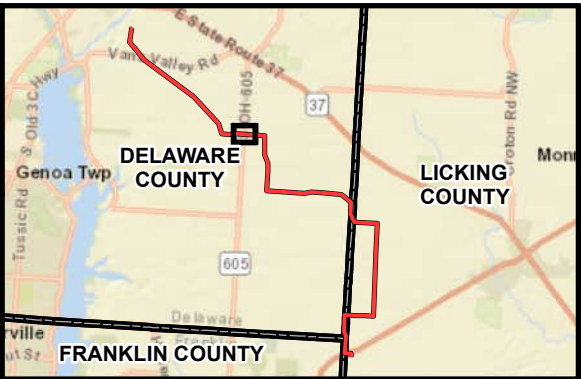
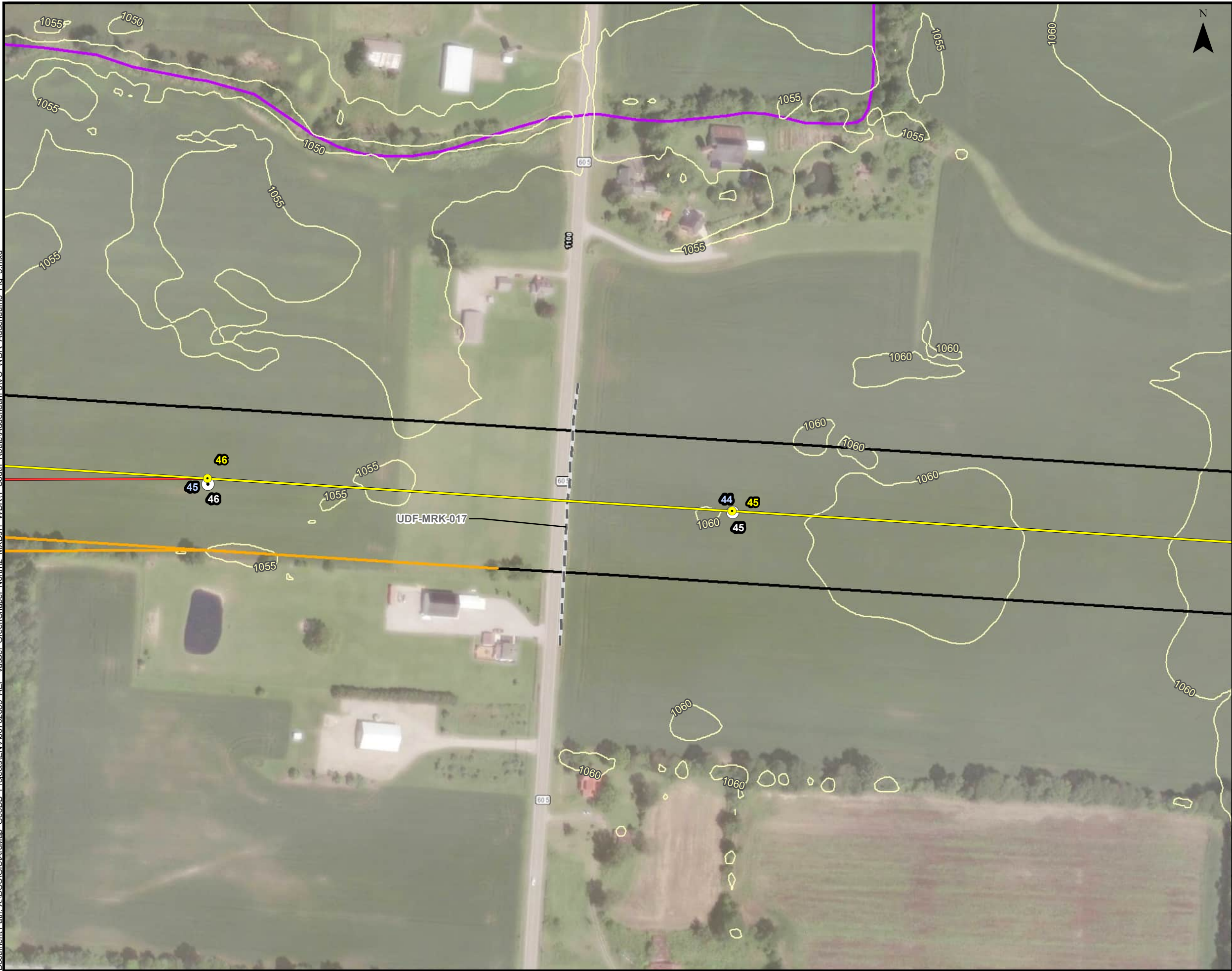


Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3
SHEET 19 OF 28
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

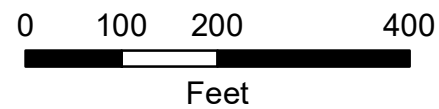
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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Legend

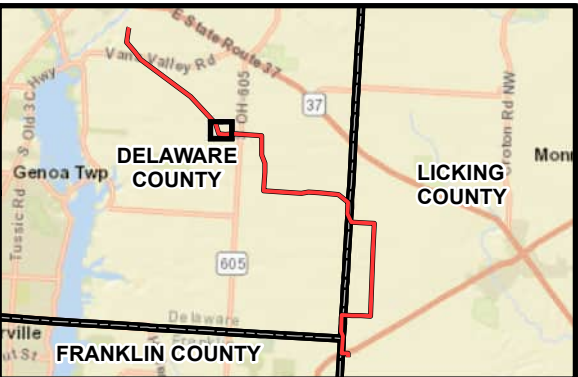
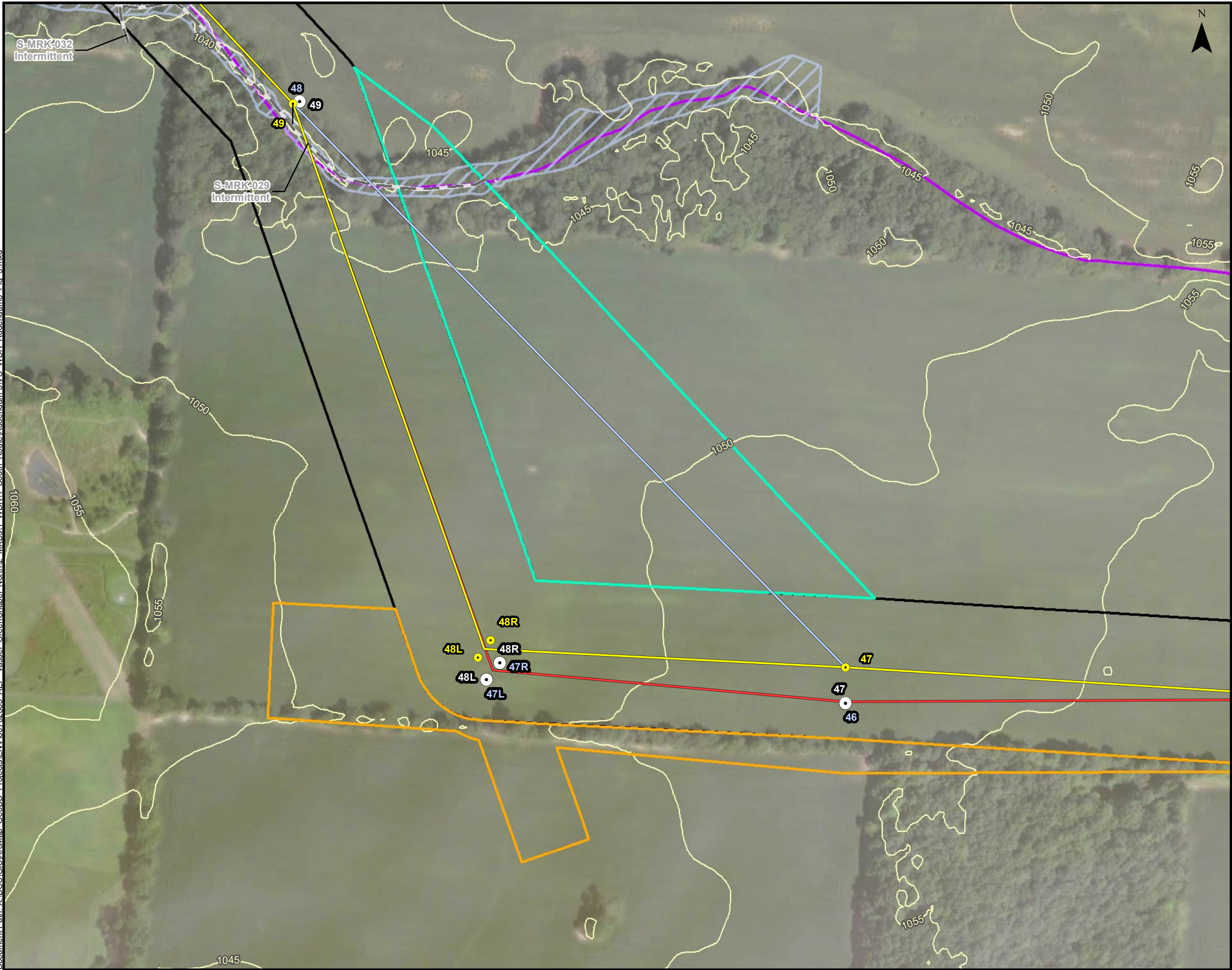
- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Upland Drainage Feature
- NHD Stream (USGS)
- Contour (5-Ft)
- Addendum 3 Survey Area
- Project Survey Area - Original Report



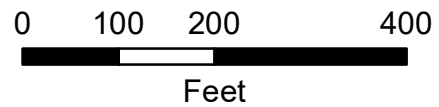
 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3 SHEET 20 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
Document Path: X:\DCS\GIS\ArchMap_GeoDB_Protection\ENV\60702685_AEP_Vassel_GreenChapel_North\2_MXD\11_WDR\1_South_Route\Addendum 3\VC_WDR_Addendum3_Fig_3.mxd



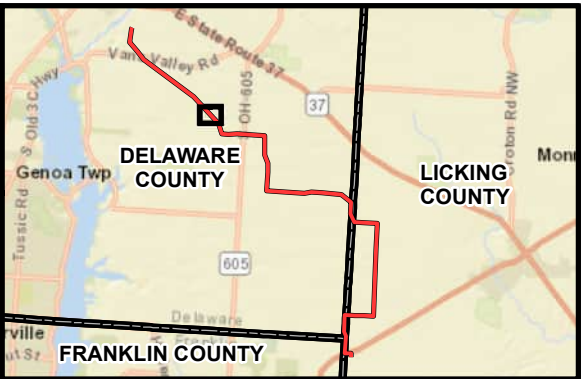
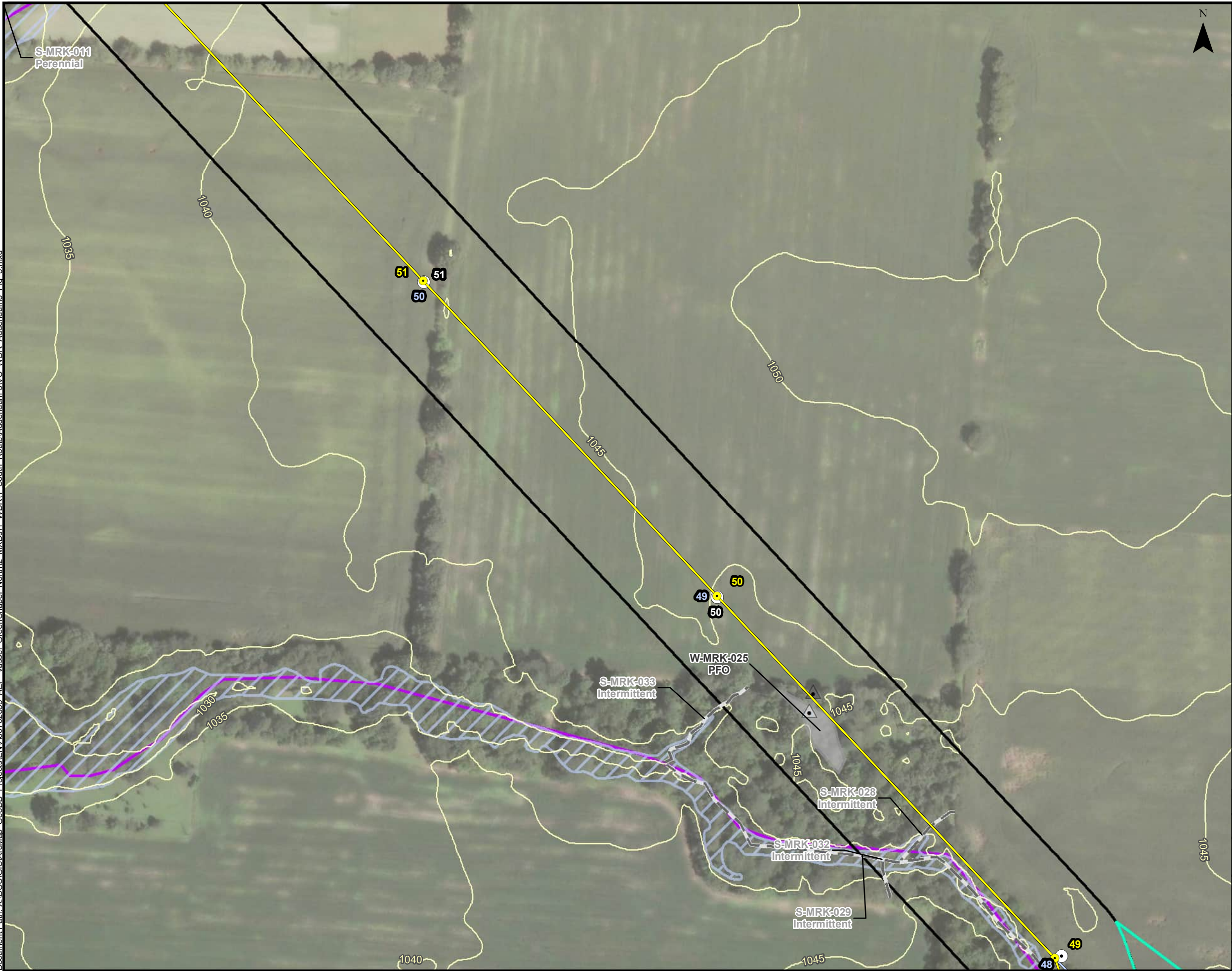
- Legend**
- Structure (Addendum 1)
 - Vassell - Curley 345kV Transmission Line (Addendum 1)
 - Proposed Structures
 - Proposed Alternative Structures
 - Vassell - Curley 345kV Transmission Line
 - Potential Alternative
 - Previously Delineated Intermittent Stream
 - NHD Stream (USGS)
 - Contour (5-Ft)
 - Addendum 3 Survey Area
 - Addendum 1 Survey Area
 - Project Survey Area - Original Report
 - NFHL 100-Year Floodplain (FEMA)



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

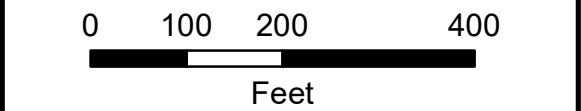
FIGURE 3 SHEET 21 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
Document Path: X:\DCS\GIS\ArchMap_GeoDB_Proj\GIS\ENV\60702685_AEP_Vassel_GreenChapel_North\2_MXD\11_WDR\1_South_Route\Addendum 3\VC_WDR_Addendum3_Fig_3.mxd



Legend

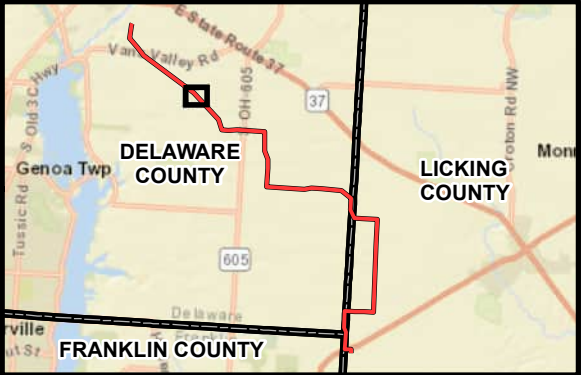
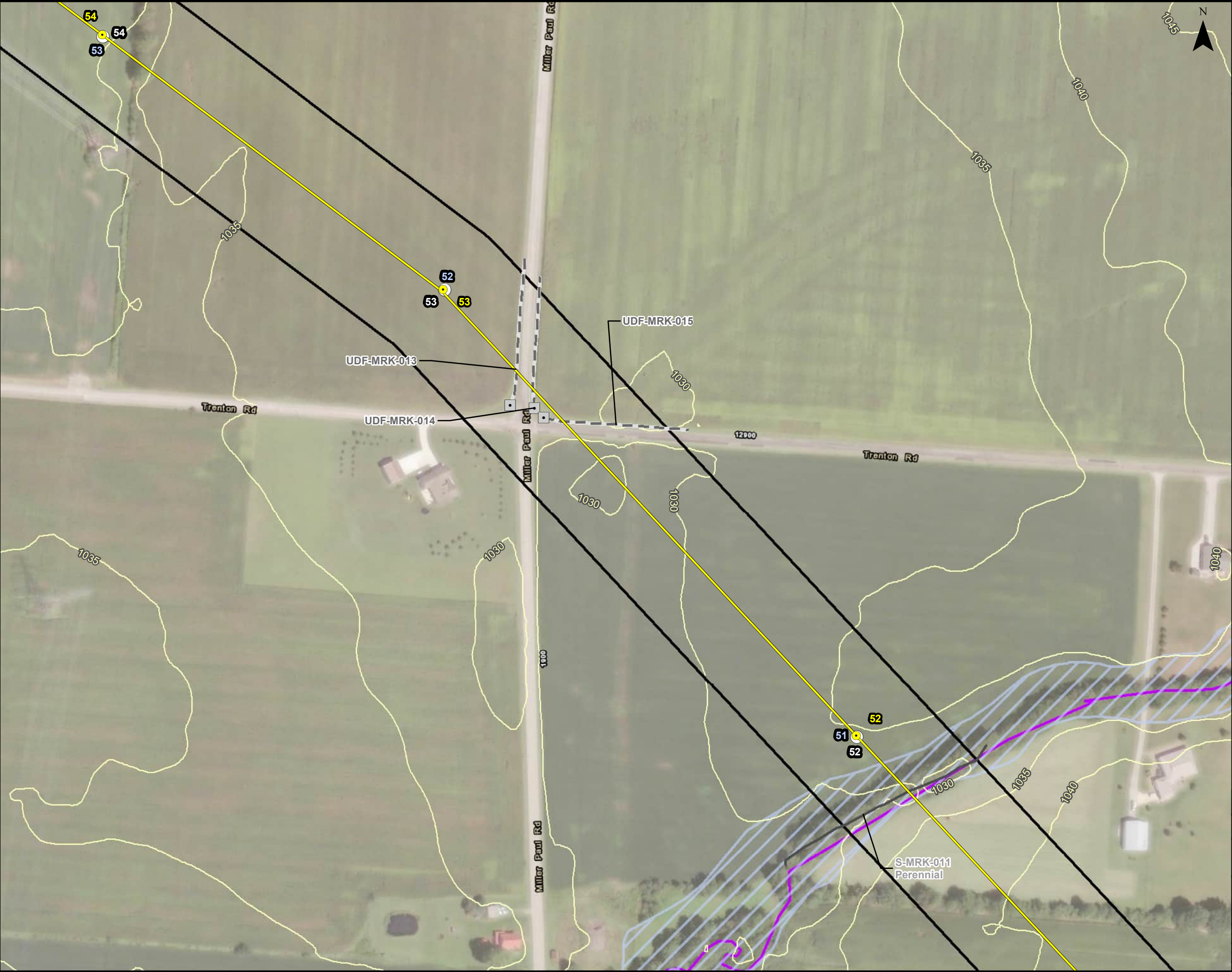
- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Potential Alternative
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Intermittent Stream
- Previously Delineated Perennial Stream
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Contour (5-Ft)
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- NFHL 100-Year Floodplain (FEMA)



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3 SHEET 22 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM


Date Saved: 2/7/2025
Document Path: X:\DCS\GIS\ArcMap_GeoDB_Projct\ENV\60702685_AEP_Vassel_GreenChapel_North\2_MXD\11_WDR\1_South_Route\Addendum 3\VC_WDR_Addendum3_Fig_3.mxd



Legend

- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Culvert
- Vassell - Curley 345kv Transmission Line
- Previously Delineated Upland Drainage Feature
- Previously Delineated Perennial Stream
- NHD Stream (USGS)
- Contour (5-Ft)
- Project Survey Area - Original Report
- NFHL 100-Year Floodplain (FEMA)

0 100 200 400
Feet

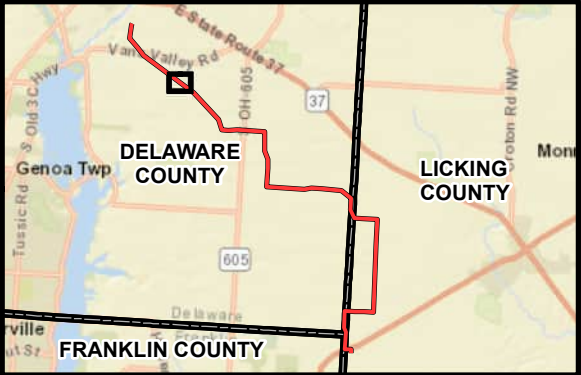


Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3
SHEET 23 OF 28
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

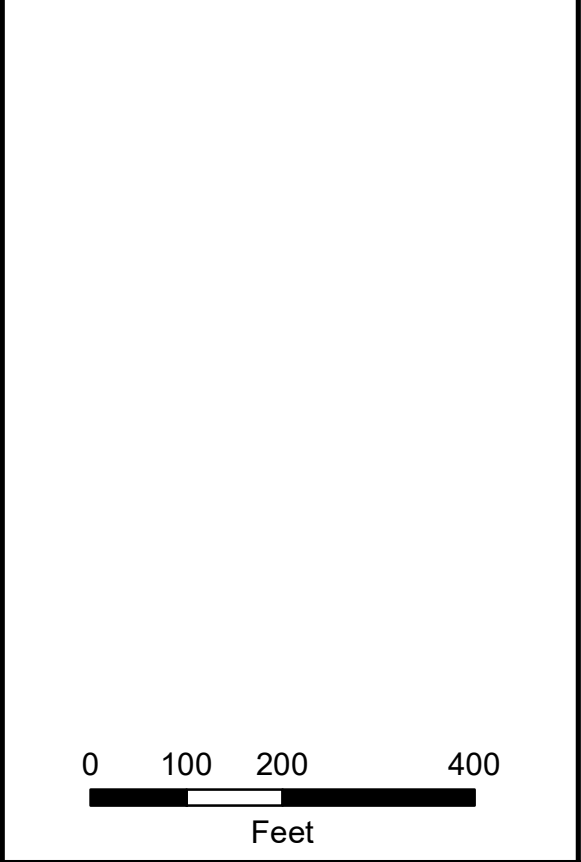
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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- NHD Stream (USGS)
- Contour (5-Ft)
- Project Survey Area - Original Report

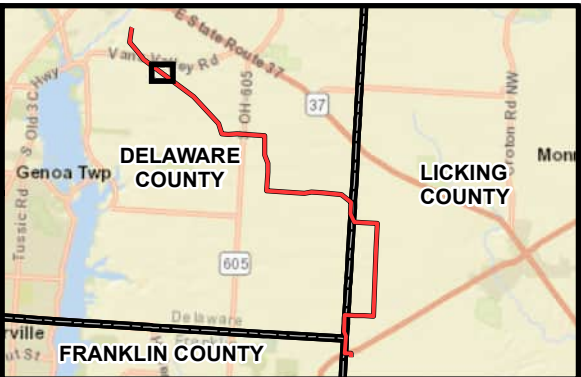
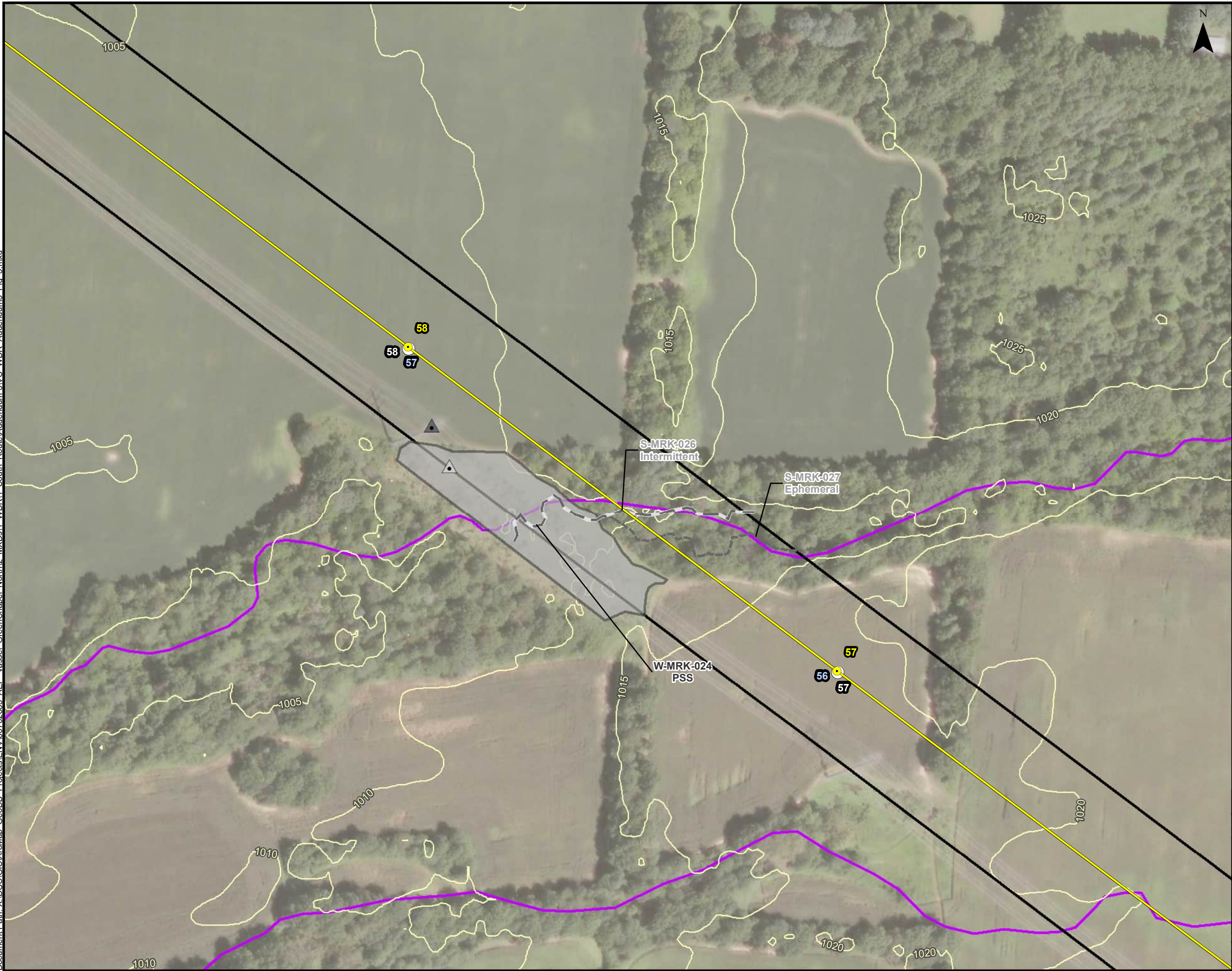


 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

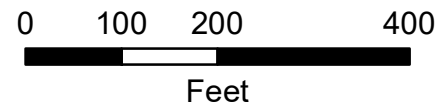
FIGURE 3
SHEET 24 OF 28
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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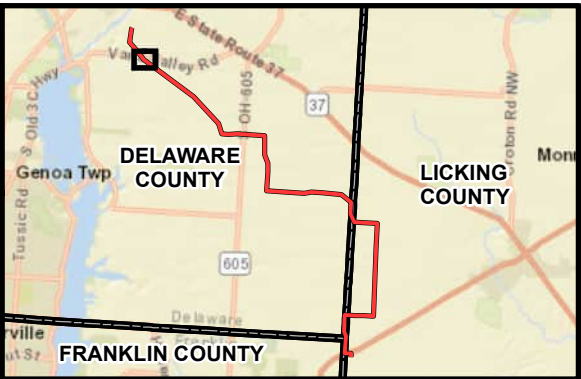
- Legend**
- Structure (Addendum 1)
 - Vassell - Curley 345kv Transmission Line (Addendum 1)
 - Proposed Structures
 - Proposed Alternative Structures
 - Vassell - Curley 345kv Transmission Line
 - Previously Delineated Wetland Data Point
 - Previously Delineated Upland Data Point
 - Previously Delineated Ephemeral Stream
 - Previously Delineated Intermittent Stream
 - Previously Delineated PSS Wetland
 - NHD Stream (USGS)
 - Contour (5-Ft)
 - Project Survey Area - Original Report



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

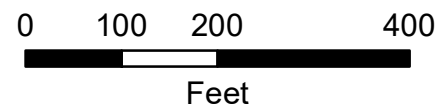
FIGURE 3 SHEET 25 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM


Date Saved: 2/7/2025
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Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Intermittent Stream
- Previously Delineated PEM Wetland
- NHD Stream (USGS)
- Contour (5-Ft)
- Project Survey Area - Original Report



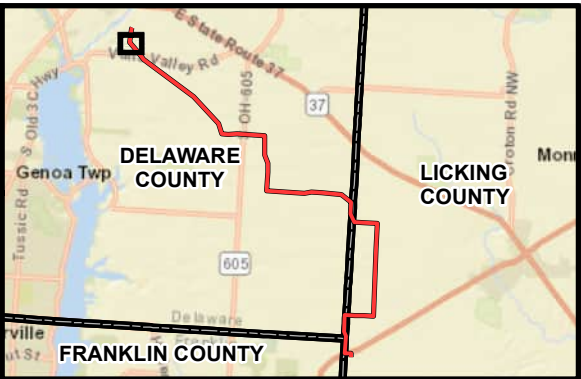
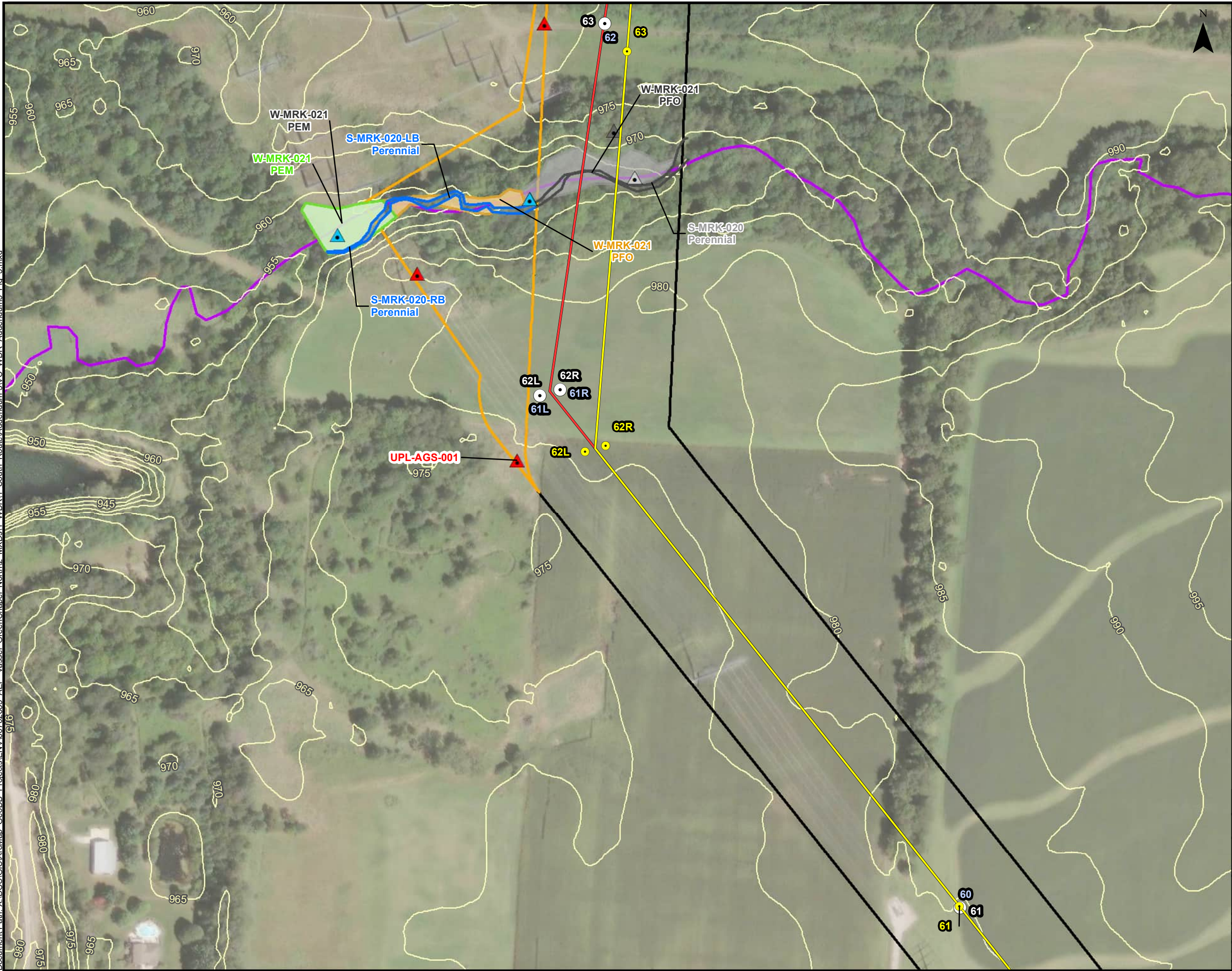


Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3
SHEET 26 OF 28
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

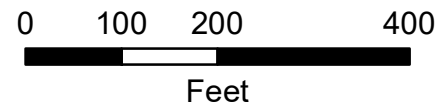
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Legend

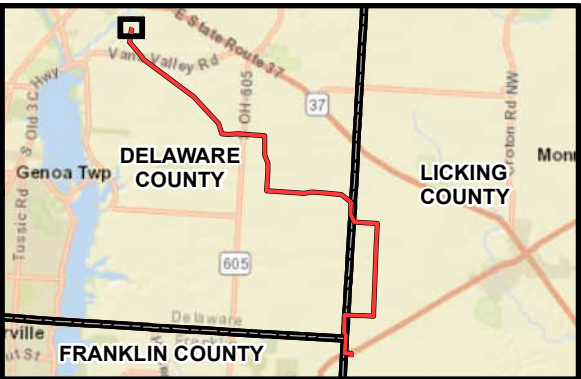
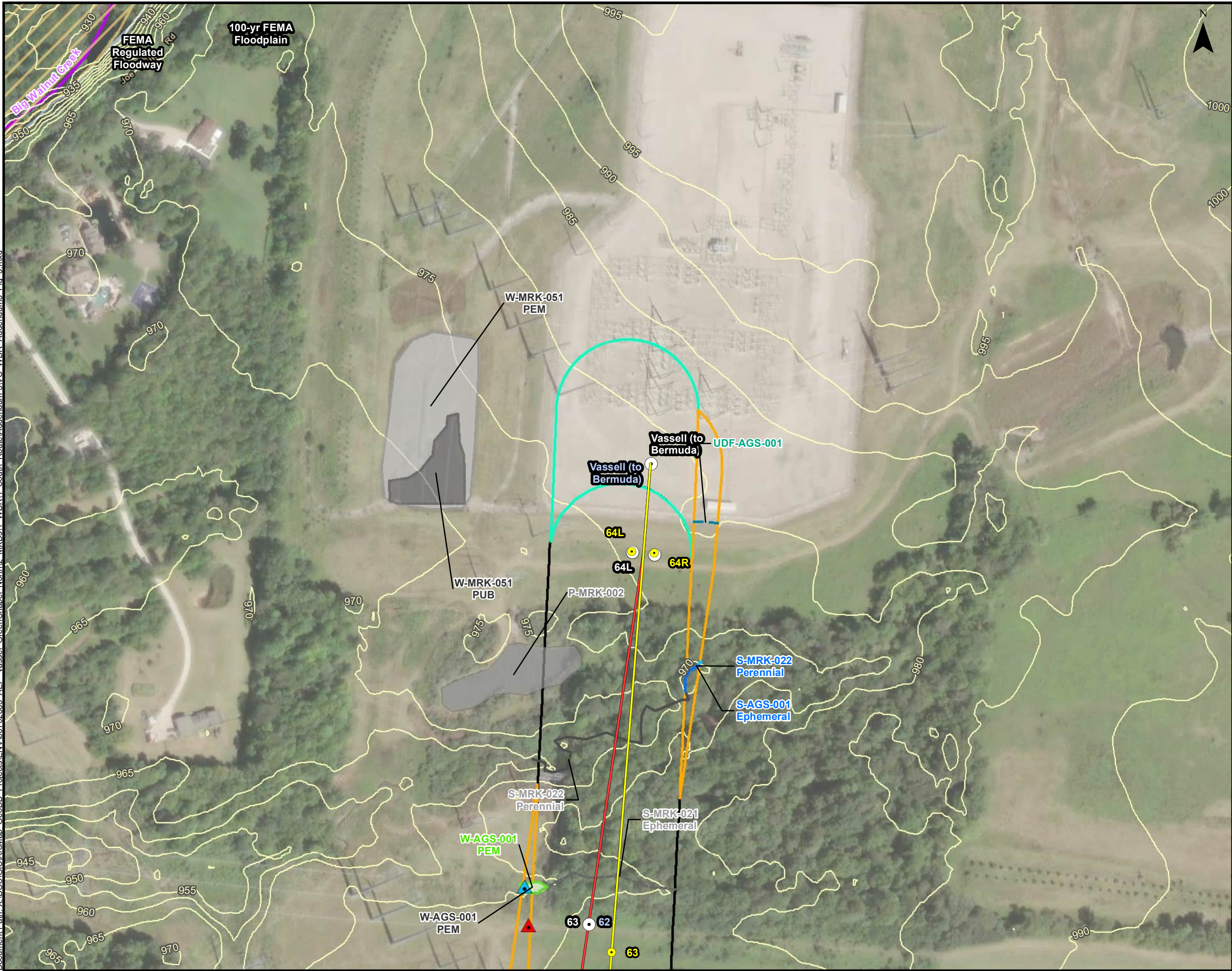
- Structure (Addendum 1)
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Wetland Data Point
- Upland Data Point
- Delineated Perennial Stream
- Delineated PEM Wetland
- Delineated PFO Wetland
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Wetland Data Point
- Previously Delineated Upland Data Point
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Previously Delineated PFO Wetland
- NHD Stream (USGS)
- Contour (5-Ft)
- Addendum 3 Survey Area
- Project Survey Area - Original Report



Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3 SHEET 27 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
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JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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Legend

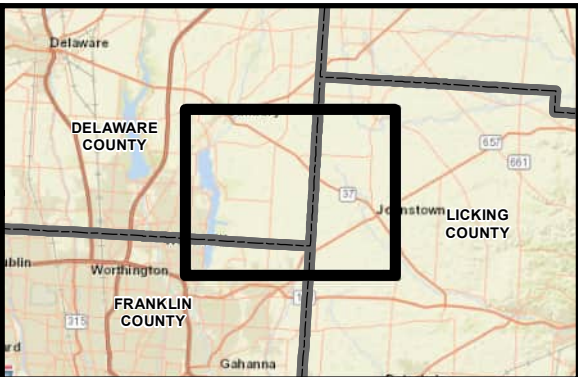
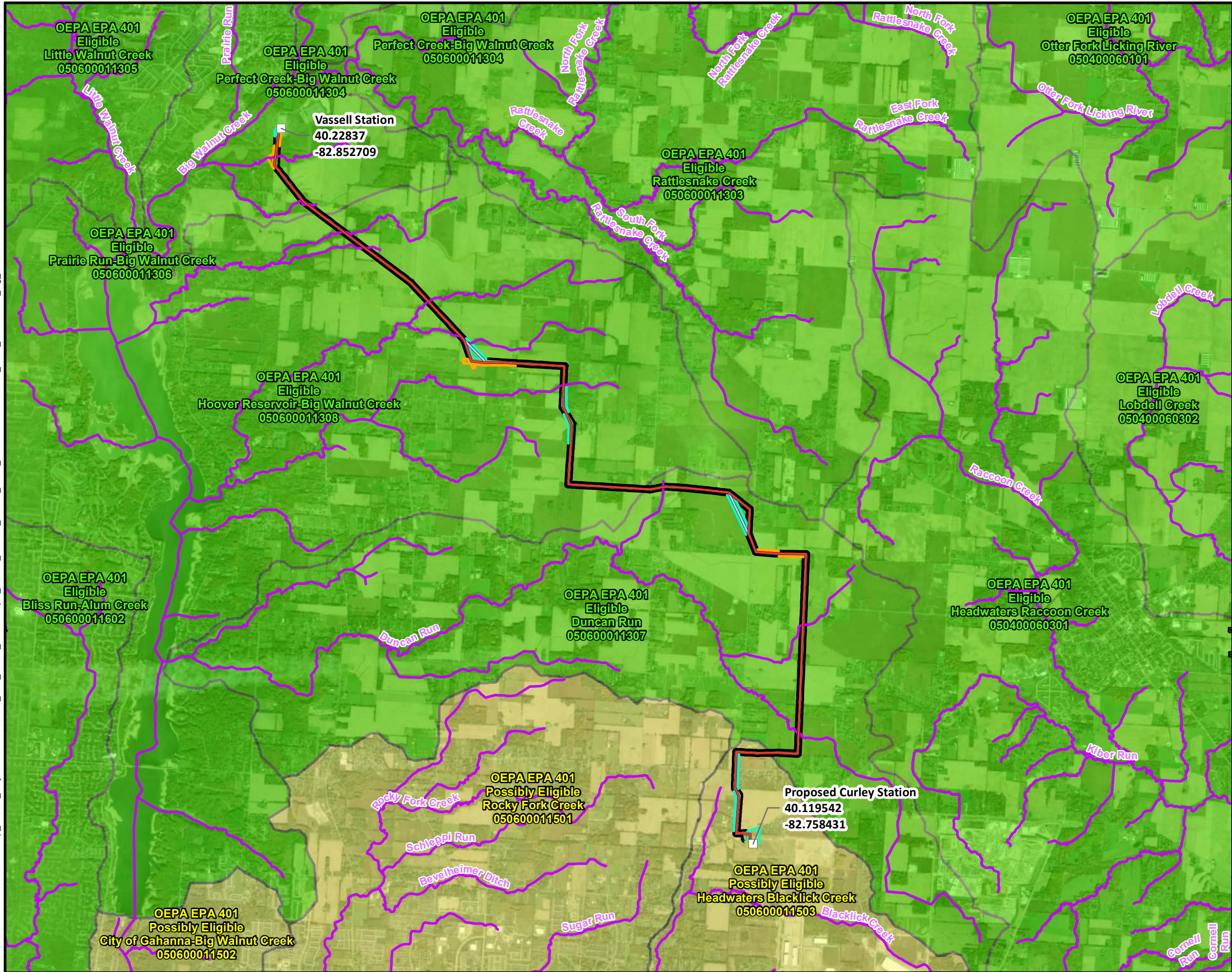
- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Wetland Data Point
- Upland Data Point
- Delineated Upland Drainage Feature
- Delineated Ephemeral Stream
- Delineated Perennial Stream
- Delineated PEM Wetland
- Vassell - Curley 345kV Transmission Line
- Previously Delineated Ephemeral Stream
- Previously Delineated Perennial Stream
- Previously Delineated PEM Wetland
- Previously Delineated PUB Wetland
- Previously Delineated Pond
- NHD Stream (USGS)
- Contour (5-Ft)
- Addendum 3 Survey Area
- Addendum 1 Survey Area
- Project Survey Area - Original Report
- NFHL 100-Year Floodplain (FEMA)
- NFHL Floodway (FEMA)

0 100 200 400
Feet

Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 3 SHEET 28 OF 28 WETLAND DELINEATION AND STREAM ASSESSMENT MAP	
DATE: 2/7/2025	1 INCH = 200 FEET
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/6/2025
Document Path: X:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60702685_AEP_Vassel_GreenChapel_North\2_MXD\1_WDR\1_South_Route\Addendum 3\VC_WDR_Addendum3_Fig_4.mxd



Legend

- Station
- Vassell - Curley 345 kV Transmission Line
- Potential Alternative
- NHD Stream (USGS)
- Project Survey Area - Addendum 3
- Project Survey Area - Addendum 1
- Project Survey Area - Original Report

OEPA Eligibility:

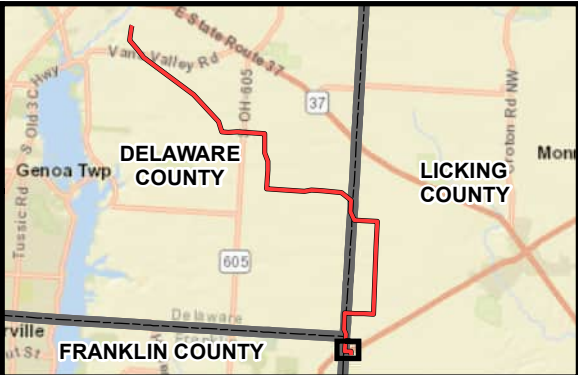
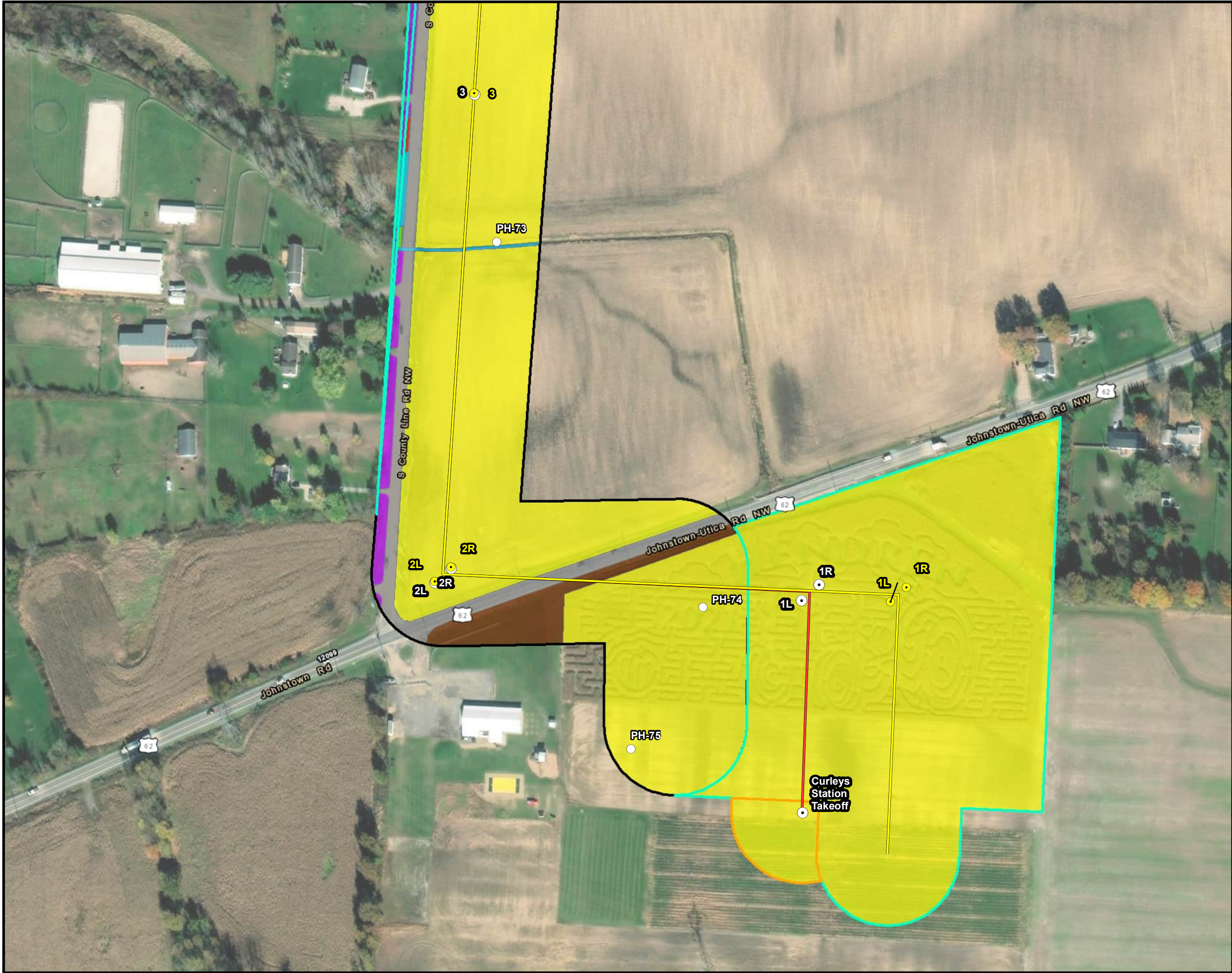
- Eligible
- Possibly Eligible

0 0.5 1 2
Miles

Vassell - Curley 345 kV Transmission Line Project Addendum 3

FIGURE 4 STREAM ELIGIBILITY MAP

DATE: 2/6/2025	1 INCH = 1 MILE
CREATED BY: CJT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

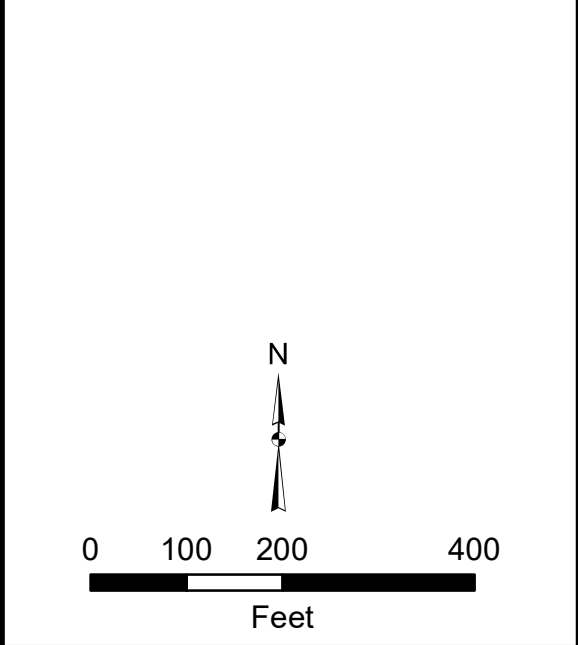


Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Addendum 3
- ▭ Project Survey Area - Addendum 1
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Landscaped
- Old Field
- Pasture/Hay Fields
- Streams/Wetlands
- Urban
- Woodland



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5 SHEET 1 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

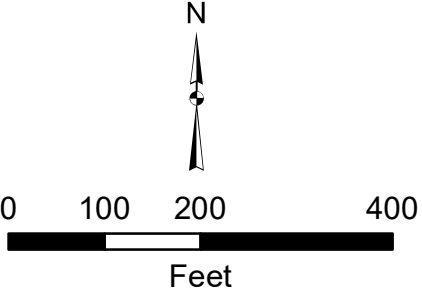



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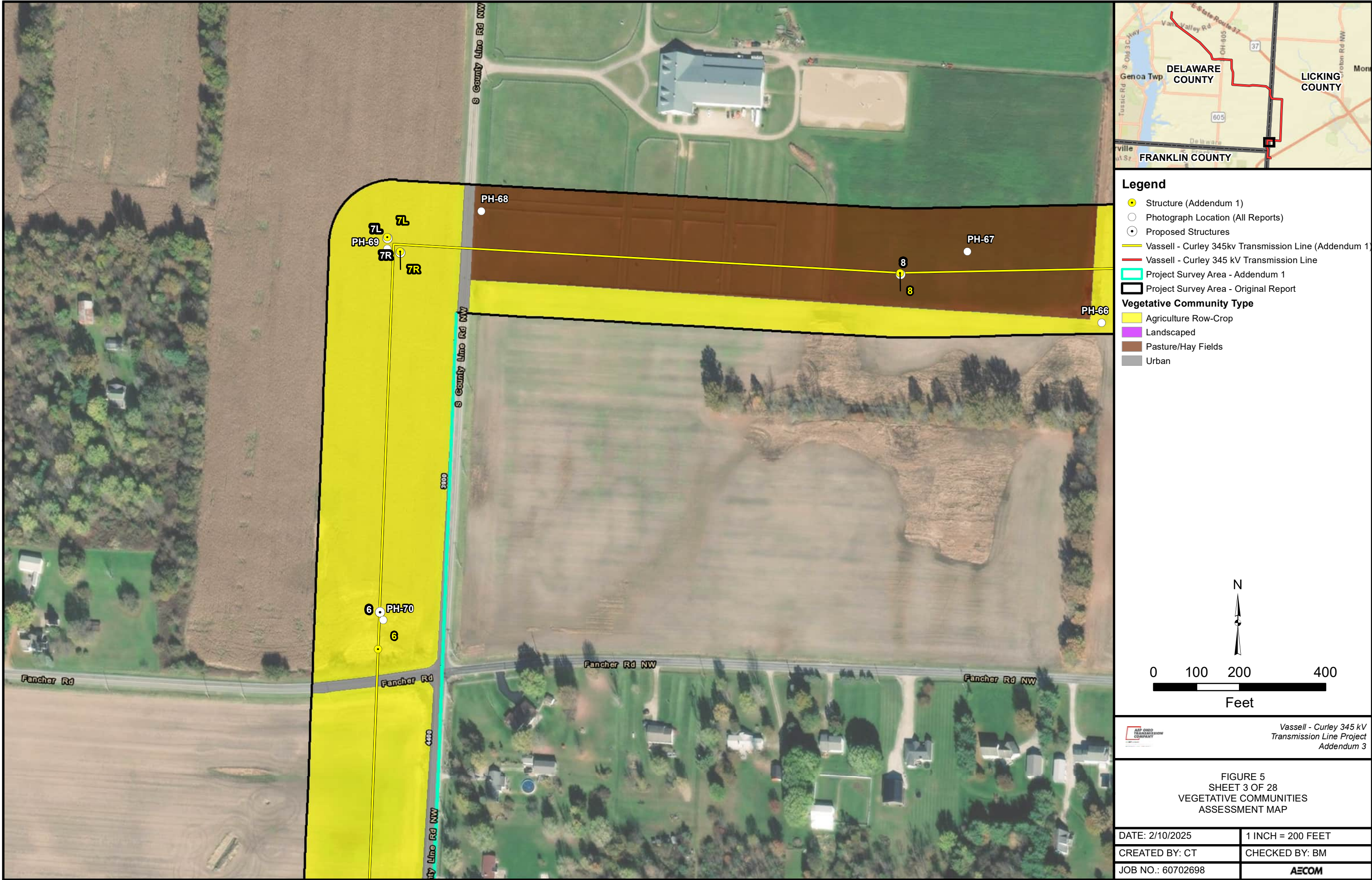
- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Project Survey Area - Addendum 1
- Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Landscaped
- Urban



 Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 5 SHEET 2 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
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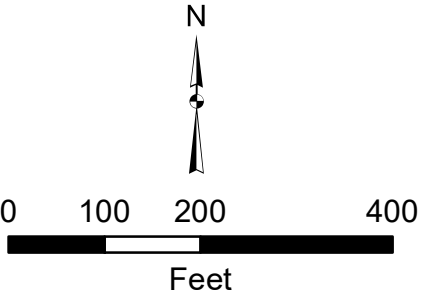



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- ⦿ Proposed Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Landscaped
- Pasture/Hay Fields
- Streams/Wetlands
- Urban
- Woodland



 AEP OHIO TRANSMISSION COMPANY A POWER OF PROGRESS		Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 5 SHEET 4 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP			
DATE: 2/10/2025		1 INCH = 200 FEET	
CREATED BY: CT		CHECKED BY: BM	
JOB NO.: 60702698		AECOM	

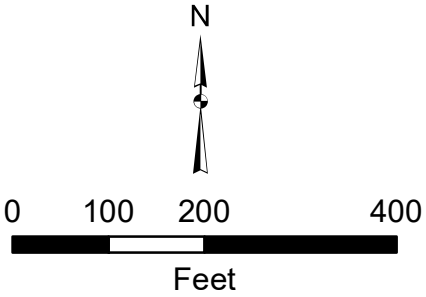


Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Streams/Wetlands
- Woodland



AEP DAVID TRANSMISSION COMPANY
AECOM
AECOM PROJECT NUMBER: 60702698

*Vassell - Curley 345 kV
Transmission Line Project
Addendum 3*

**FIGURE 5
SHEET 5 OF 28
VEGETATIVE COMMUNITIES
ASSESSMENT MAP**

DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

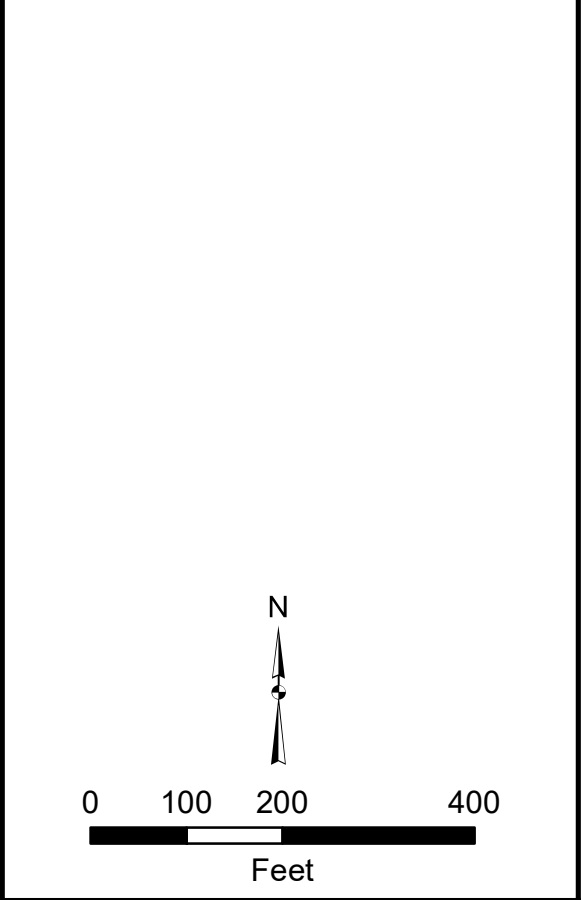


Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5 SHEET 6 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

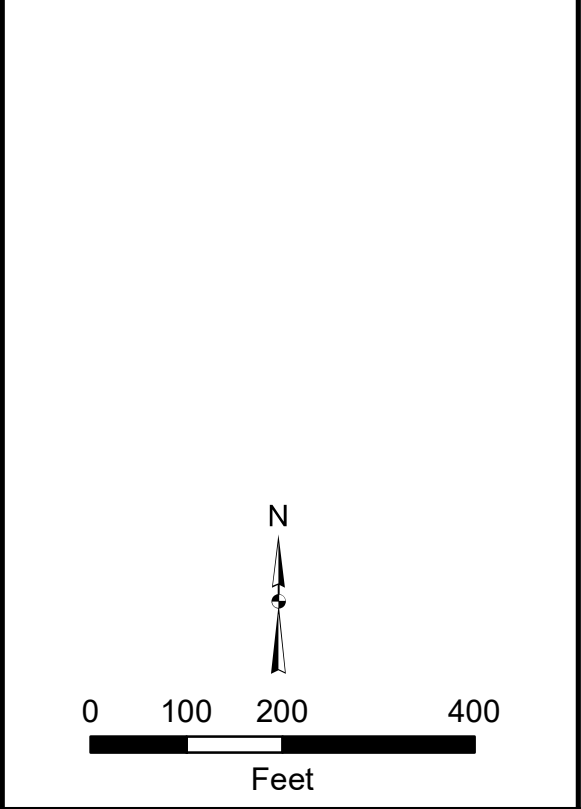


Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Original Report

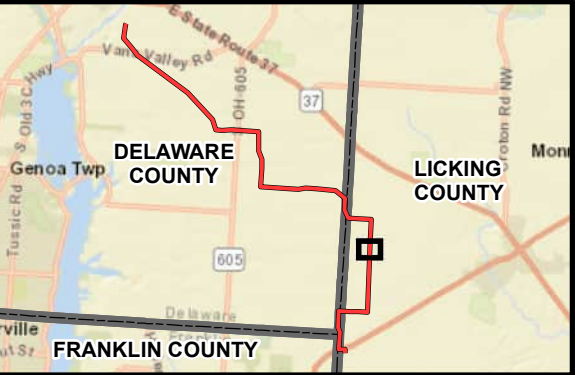
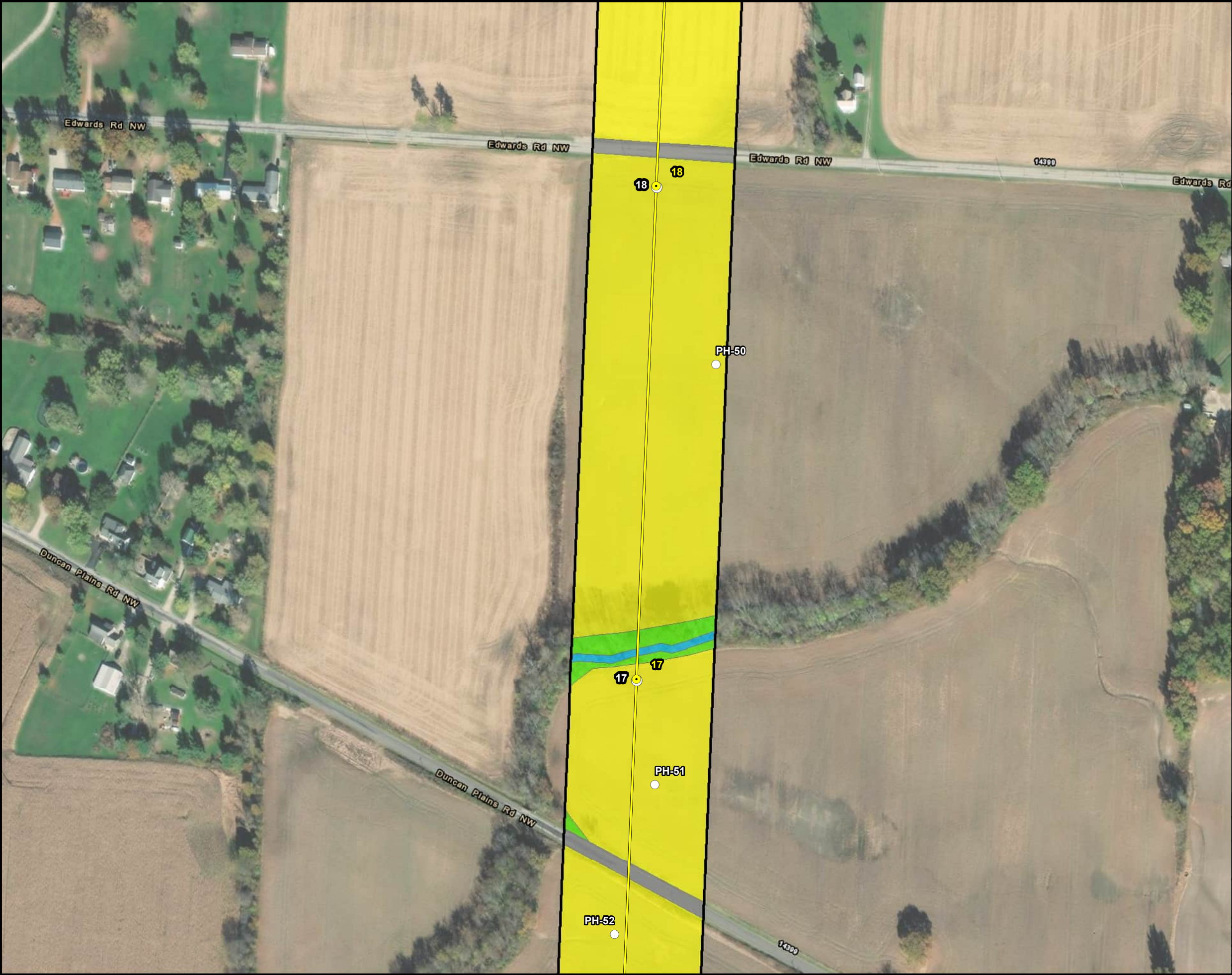
Vegetative Community Type

- Agriculture Row-Crop
- Streams/Wetlands
- Urban
- Woodland



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5 SHEET 7 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

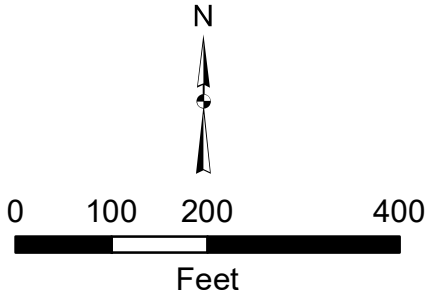



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▣ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Streams/Wetlands
- Urban
- Woodland



 Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 5 SHEET 8 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

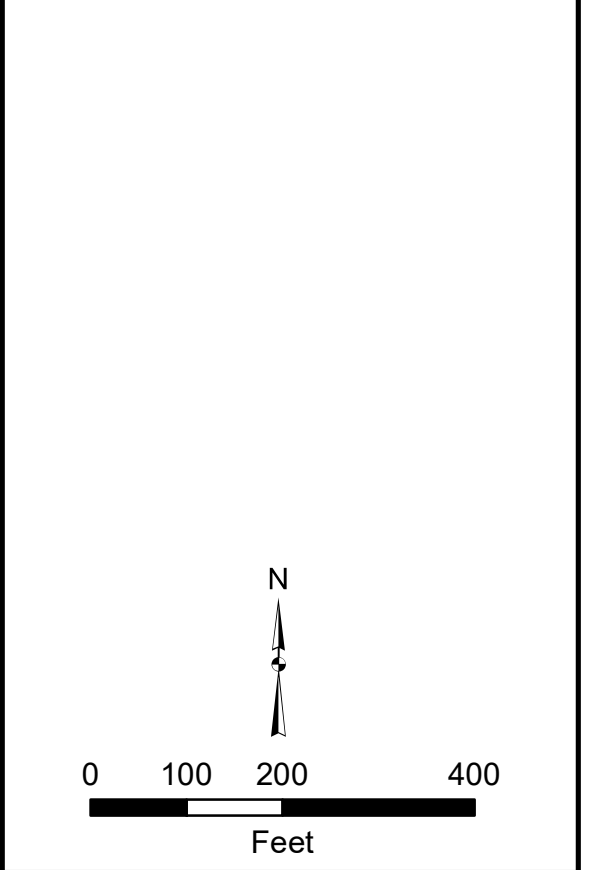
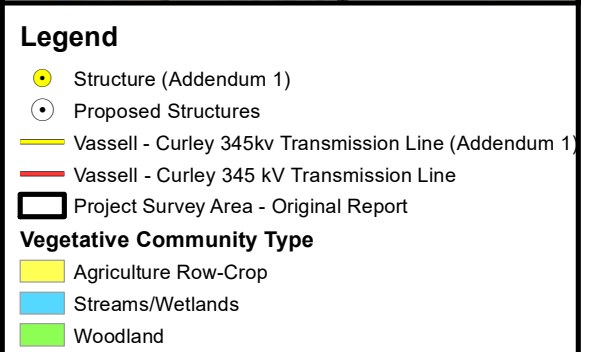


FIGURE 5
SHEET 9 OF 28
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

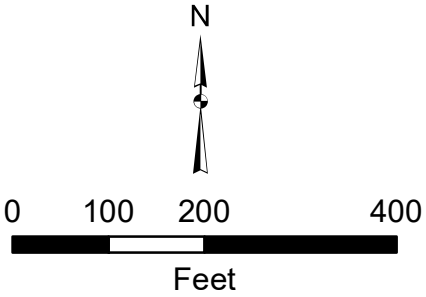



Legend

- Structure (Addendum 1)
- Proposed Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Project Survey Area - Addendum 3
- Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Streams/Wetlands
- Urban
- Woodland



 <div>Vassell - Curley 345 kV Transmission Line Project Addendum 3</div>	
FIGURE 5 SHEET 10 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Potential Alternative
- ▭ Project Survey Area - Addendum 3
- ▭ Project Survey Area - Addendum 1
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Landscaped
- Urban

North arrow pointing up, labeled 'N'.

Scale bar: 0, 100, 200, 400 Feet.

 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5 SHEET 11 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

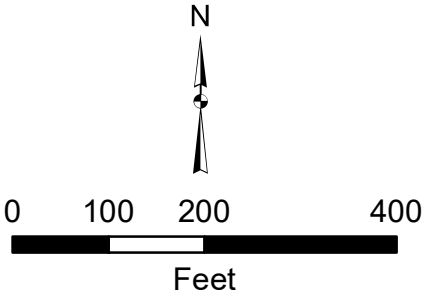



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Potential Alternative
- ▭ Project Survey Area - Addendum 1
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop



 Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 5 SHEET 12 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

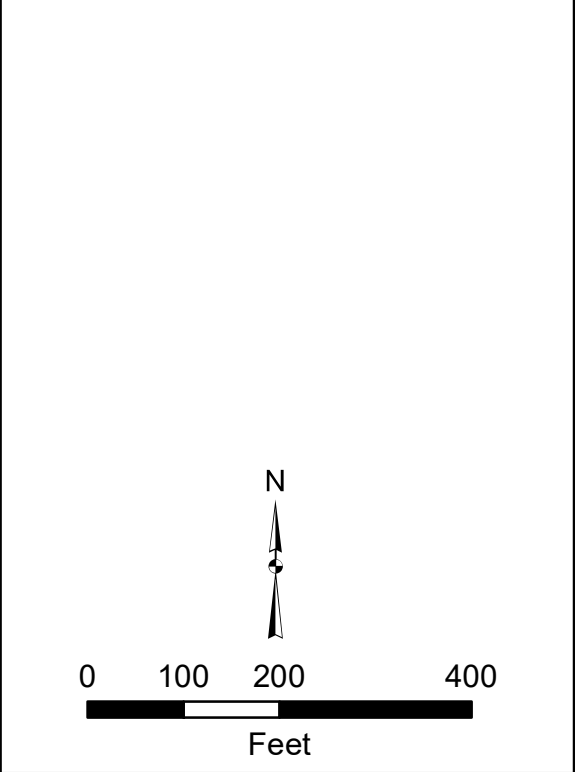


Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Potential Alternative
- Project Survey Area - Addendum 1
- Project Survey Area - Original Report

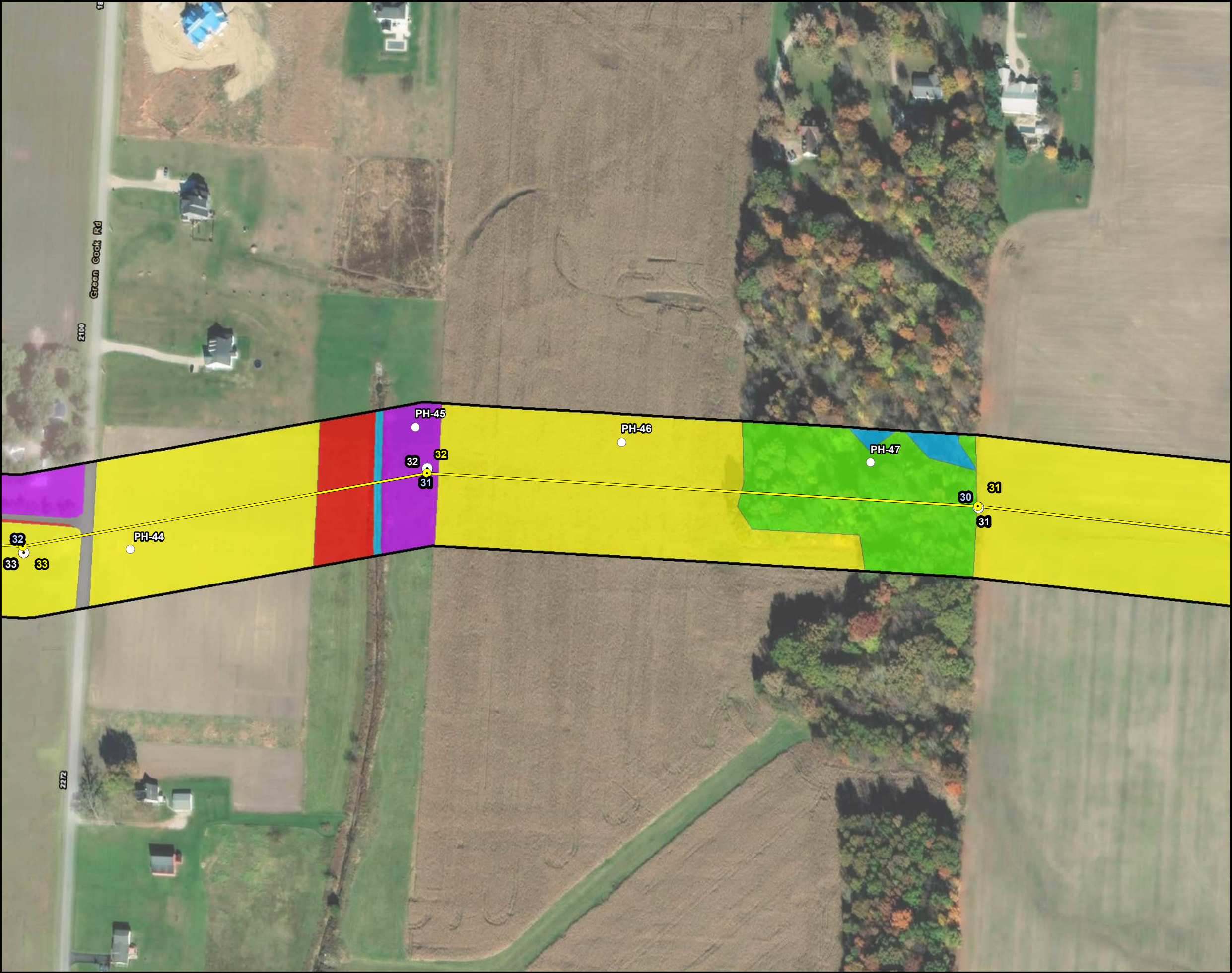
Vegetative Community Type

- Agriculture Row-Crop
- Woodland



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5 SHEET 13 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

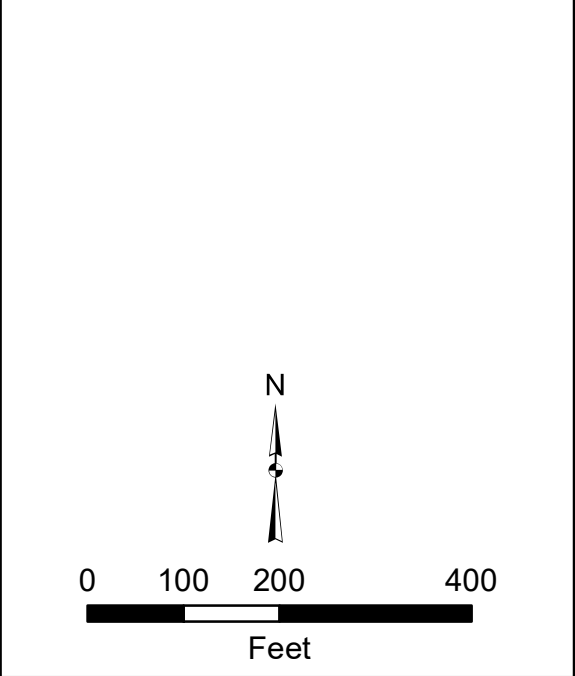


Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Potential Alternative
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Landscaped
- Old Field
- Streams/Wetlands
- Urban
- Woodland



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5
SHEET 14 OF 28
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

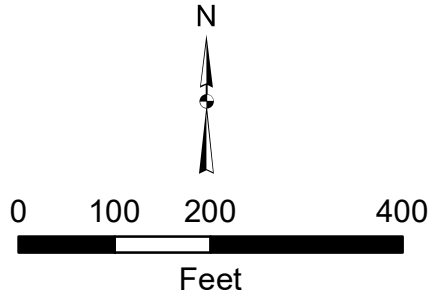



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Landscaped
- Old Field
- Streams/Wetlands
- Urban
- Woodland



 <div>Vassell - Curley 345 kV Transmission Line Project Addendum 3</div>	
FIGURE 5 SHEET 15 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

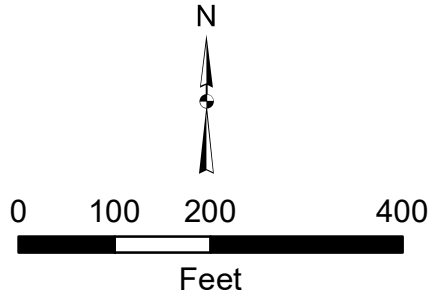



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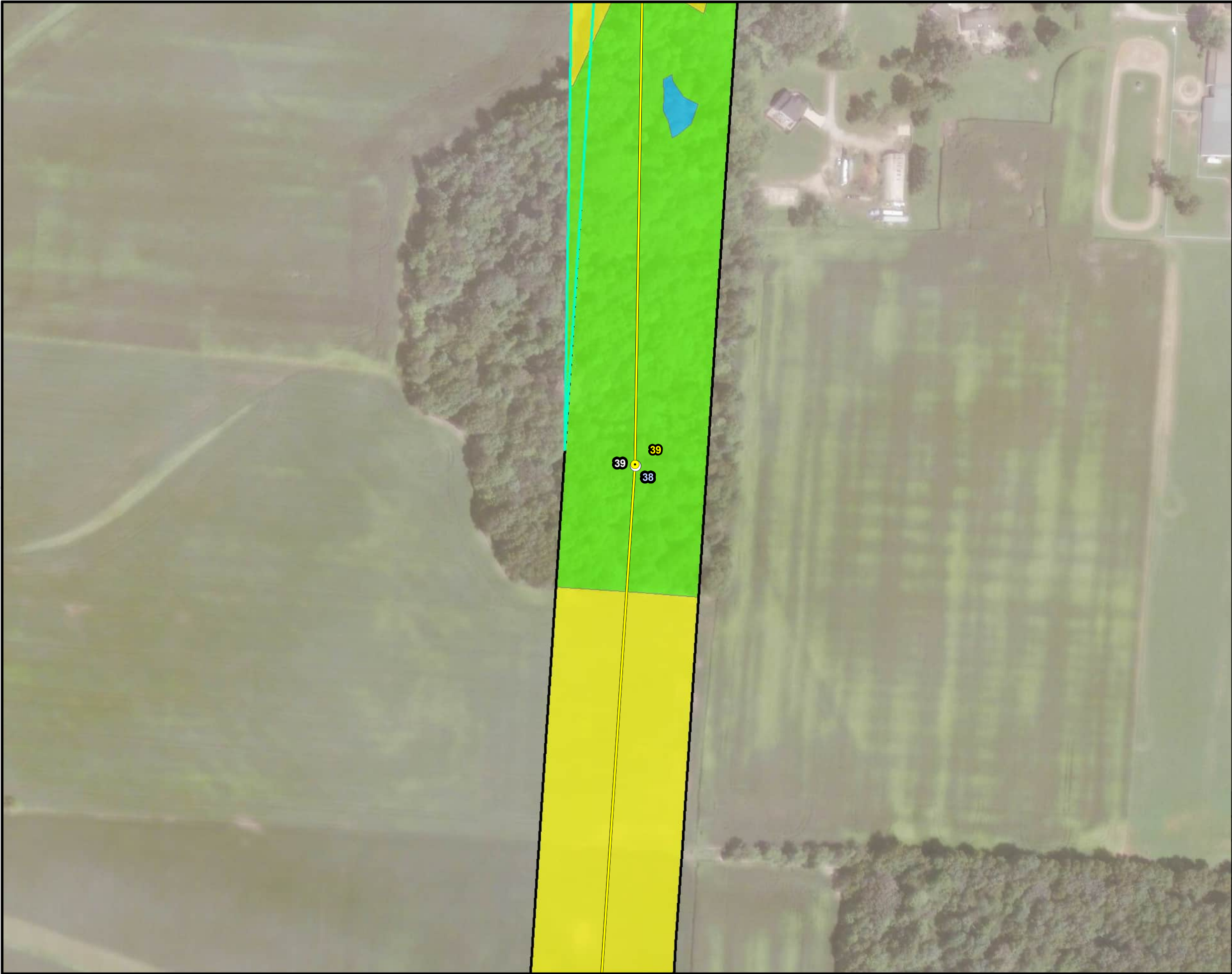
- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Old Field
- Streams/Wetlands
- Woodland



 Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 5 SHEET 16 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

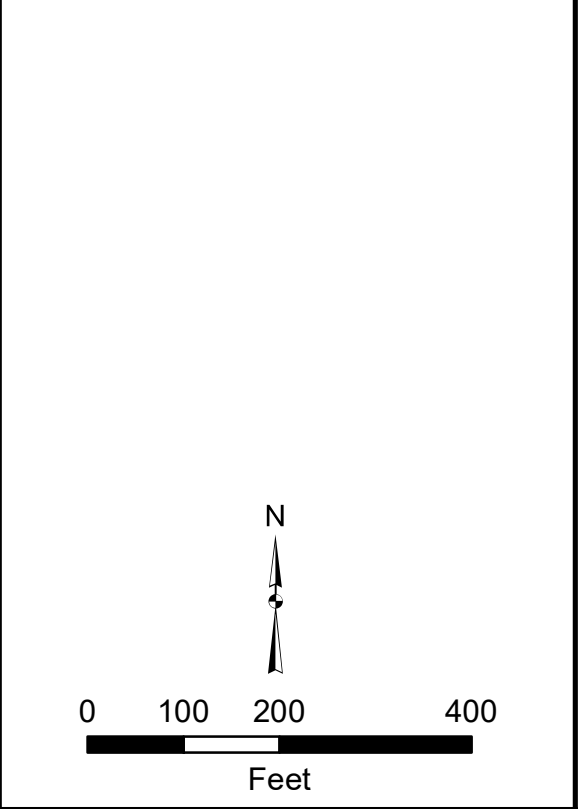


Legend

- Structure (Addendum 1)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Addendum 1
- ▭ Project Survey Area - Original Report

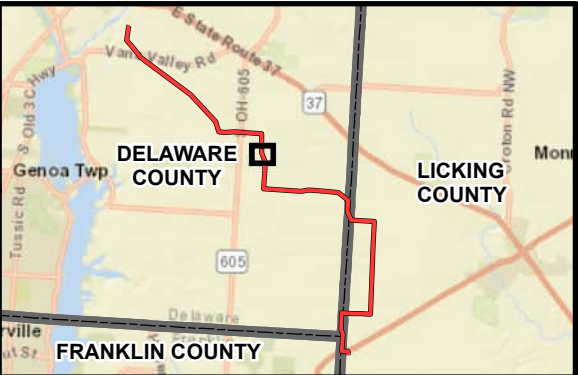
Vegetative Community Type

- Agriculture Row-Crop
- Streams/Wetlands
- Woodland



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5 SHEET 17 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

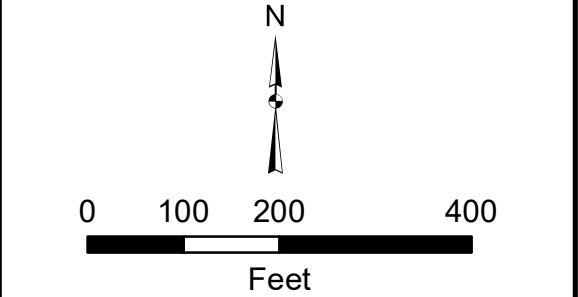



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Addendum 1
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Urban
- Woodland



 Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 5 SHEET 18 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

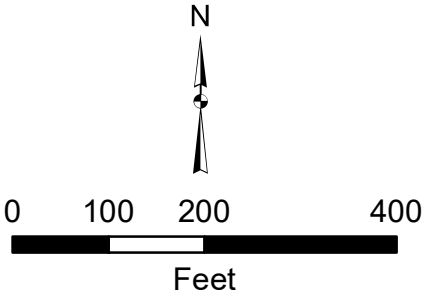



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Addendum 1
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Streams/Wetlands
- Woodland



 Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 5 SHEET 19 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

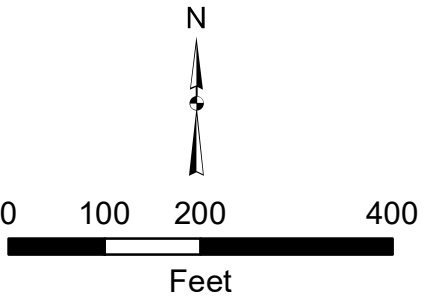



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Addendum 3
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Pasture/Hay Fields
- Urban
- Woodland

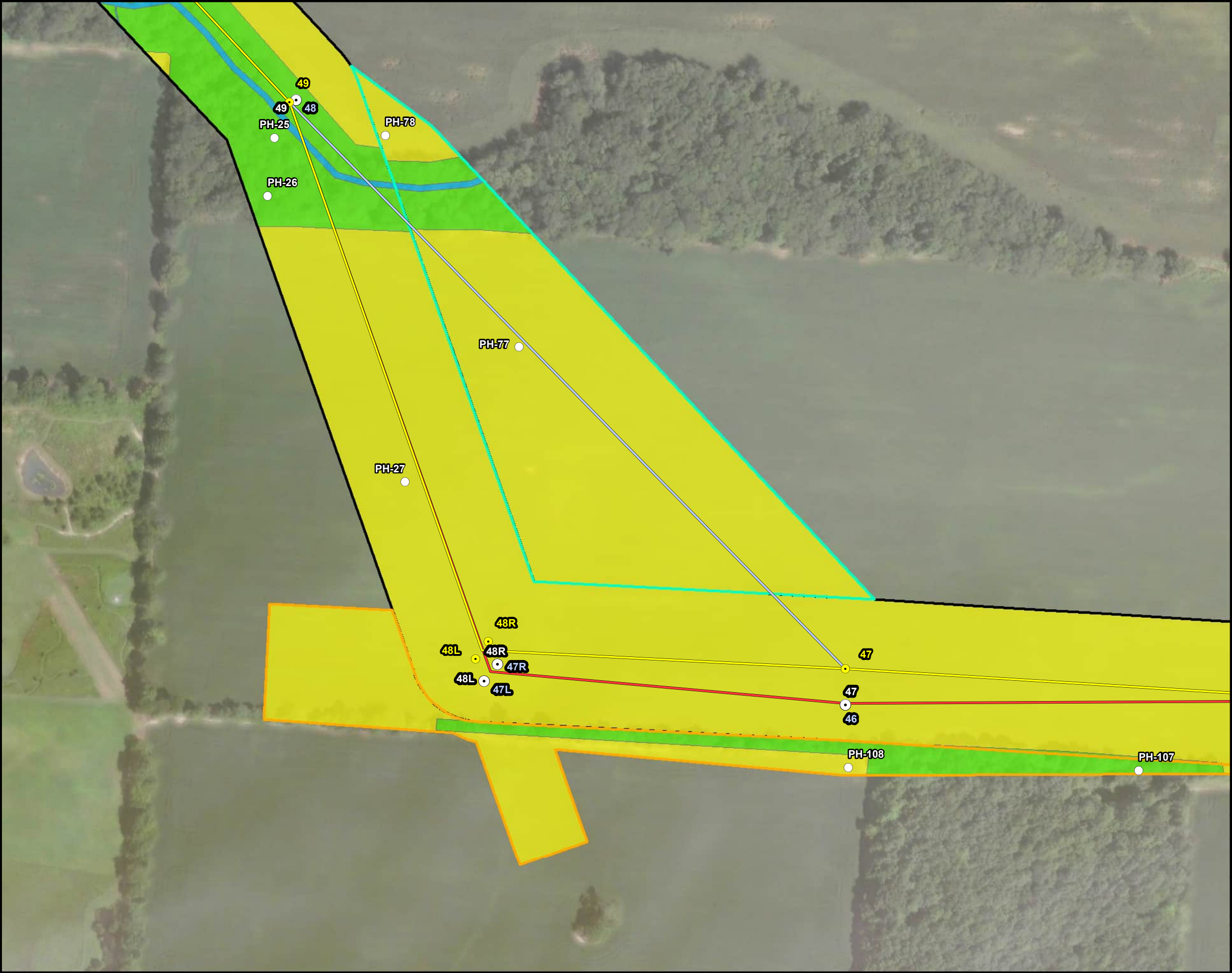




Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5
SHEET 20 OF 28
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM




Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Potential Alternative
- Project Survey Area - Addendum 3
- Project Survey Area - Addendum 1
- Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Streams/Wetlands
- Woodland

Feet

 Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 5 SHEET 21 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

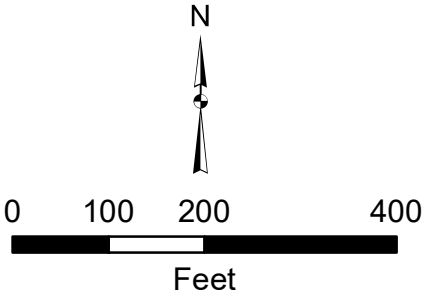



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Potential Alternative
- Project Survey Area - Addendum 1
- Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Streams/Wetlands
- Woodland





Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5
SHEET 22 OF 28
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

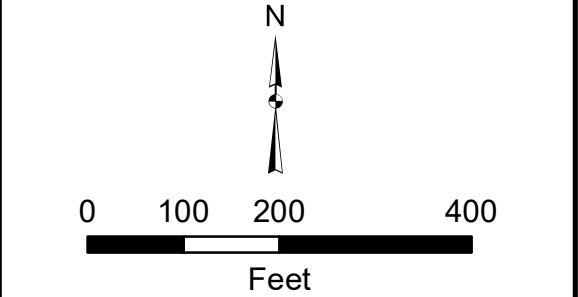



Legend

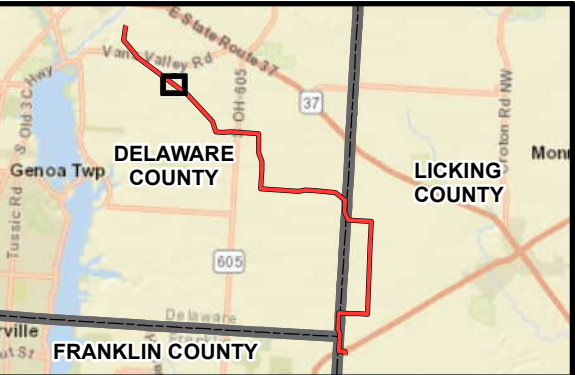
- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Landscaped
- Streams/Wetlands
- Urban
- Woodland



 Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 5 SHEET 23 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

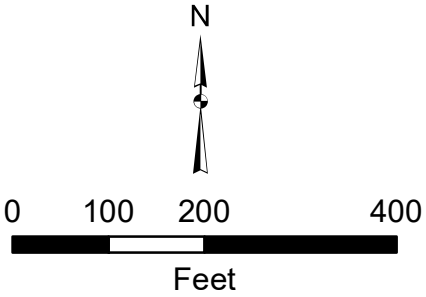



Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Woodland

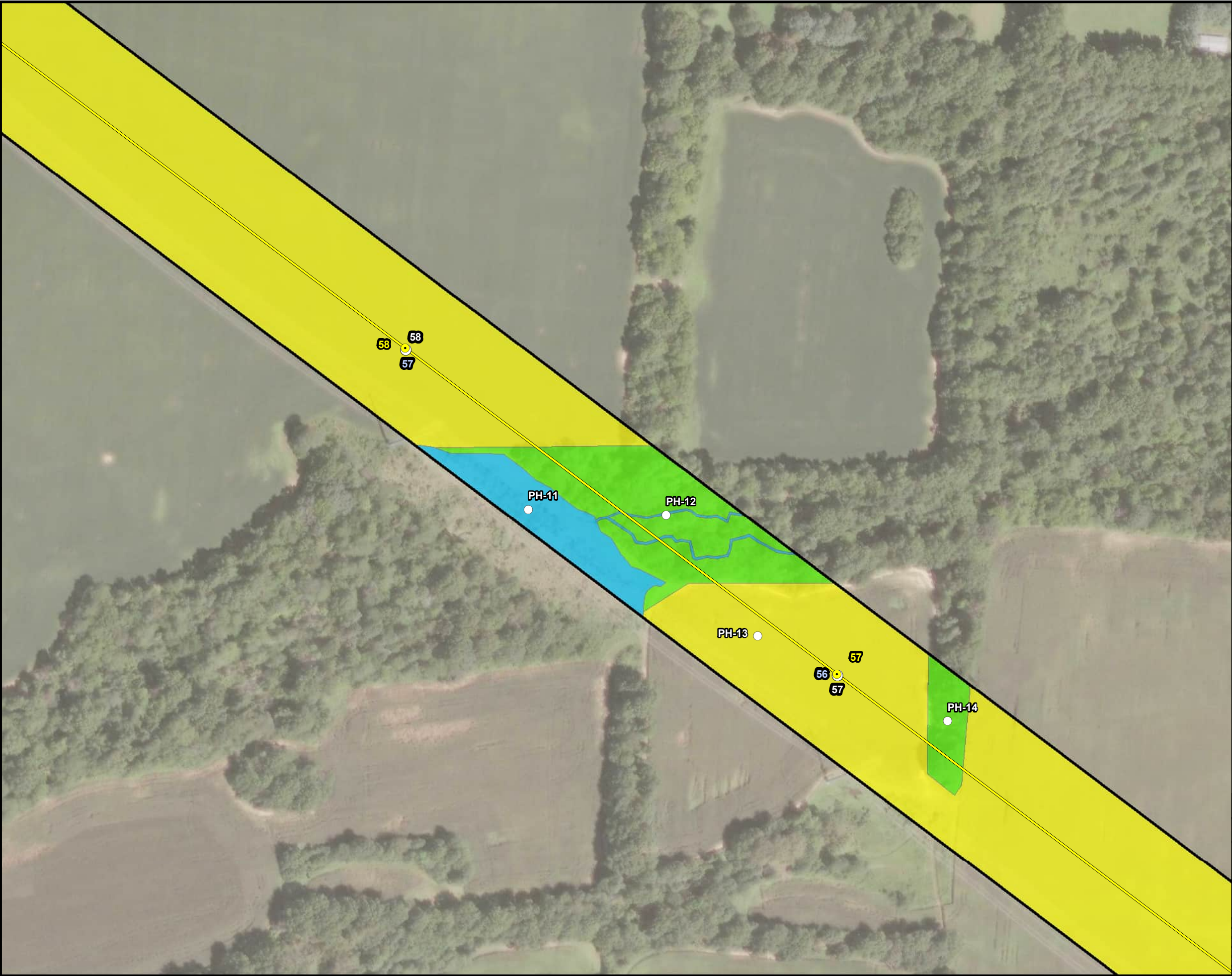




Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5
SHEET 24 OF 28
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

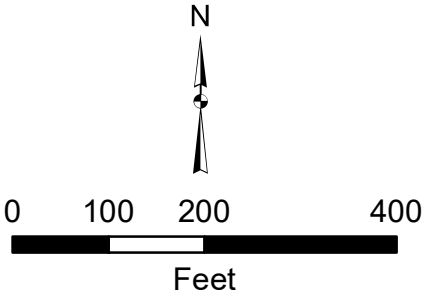



Legend

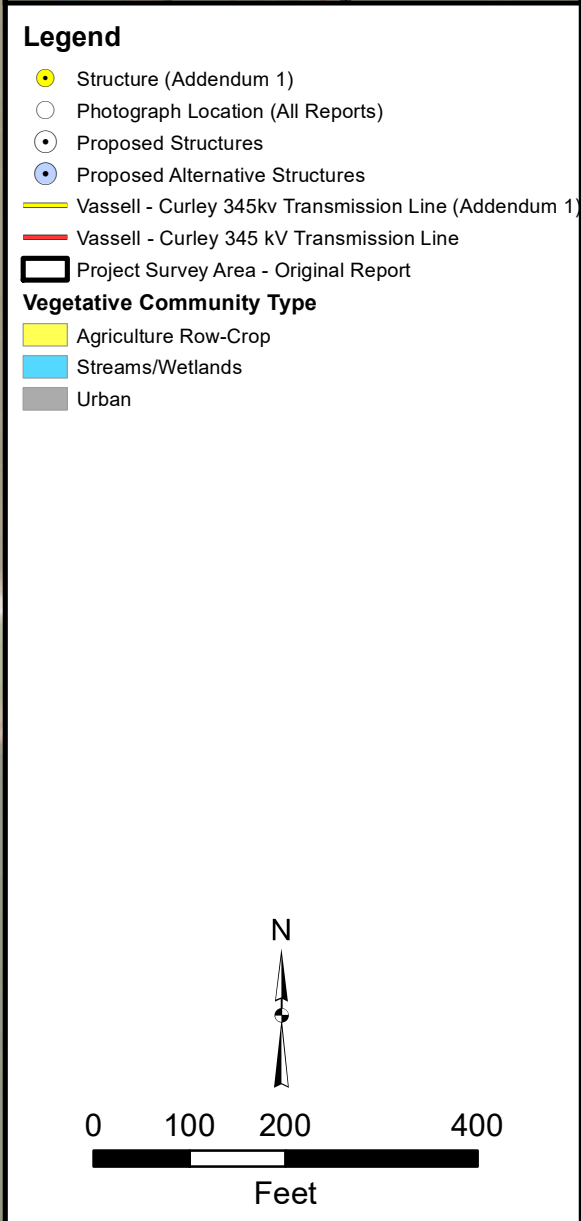
- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- ▭ Project Survey Area - Original Report

Vegetative Community Type

- Agriculture Row-Crop
- Streams/Wetlands
- Woodland



 <div>Vassell - Curley 345 kV Transmission Line Project Addendum 3</div>	
FIGURE 5 SHEET 25 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM





**AEP OHIO
TRANSMISSION
COMPANY**

AEP OHIO TRANSMISSION COMPANY
AEP OHIO TRANSMISSION COMPANY
AEP OHIO TRANSMISSION COMPANY

*Vassell - Curley 345 kV
Transmission Line Project
Addendum 3*

FIGURE 5
SHEET 26 OF 28
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

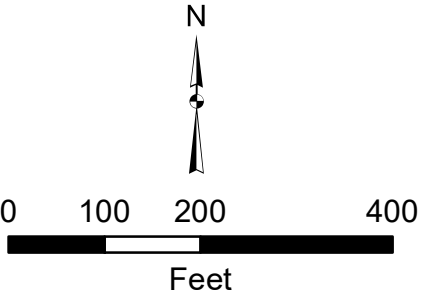


Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Project Survey Area - Addendum 3
- Project Survey Area - Original Report

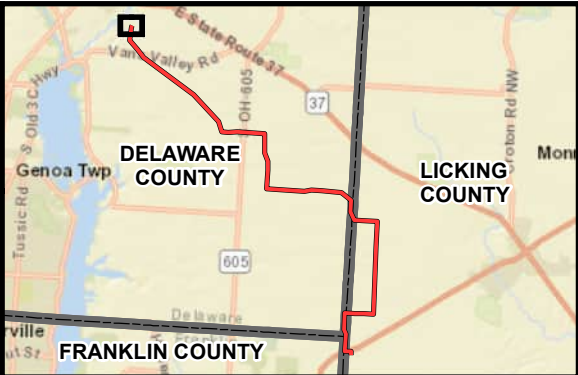
Vegetative Community Type

- Agriculture Row-Crop
- Old Field
- Pasture/Hay Fields
- Streams/Wetlands
- Urban
- Woodland



 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5 SHEET 27 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

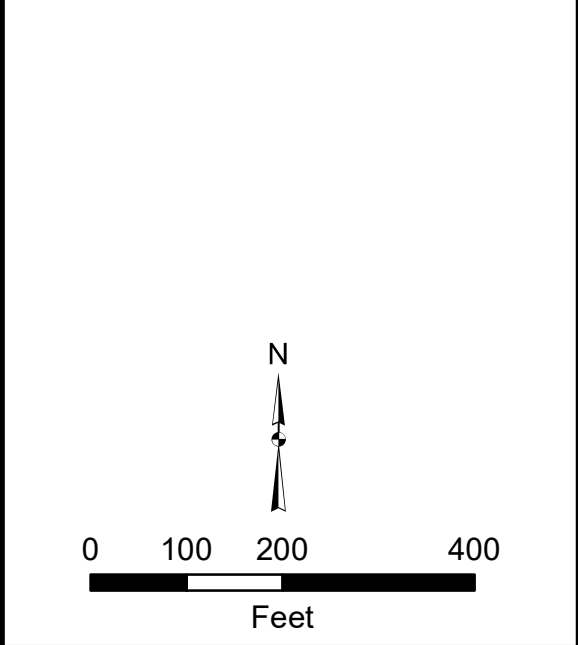


Legend

- Structure (Addendum 1)
- Photograph Location (All Reports)
- Proposed Structures
- Proposed Alternative Structures
- Station
- Vassell - Curley 345kv Transmission Line (Addendum 1)
- Vassell - Curley 345 kV Transmission Line
- Project Survey Area - Addendum 3
- Project Survey Area - Addendum 1
- Project Survey Area - Original Report

Vegetative Community Type

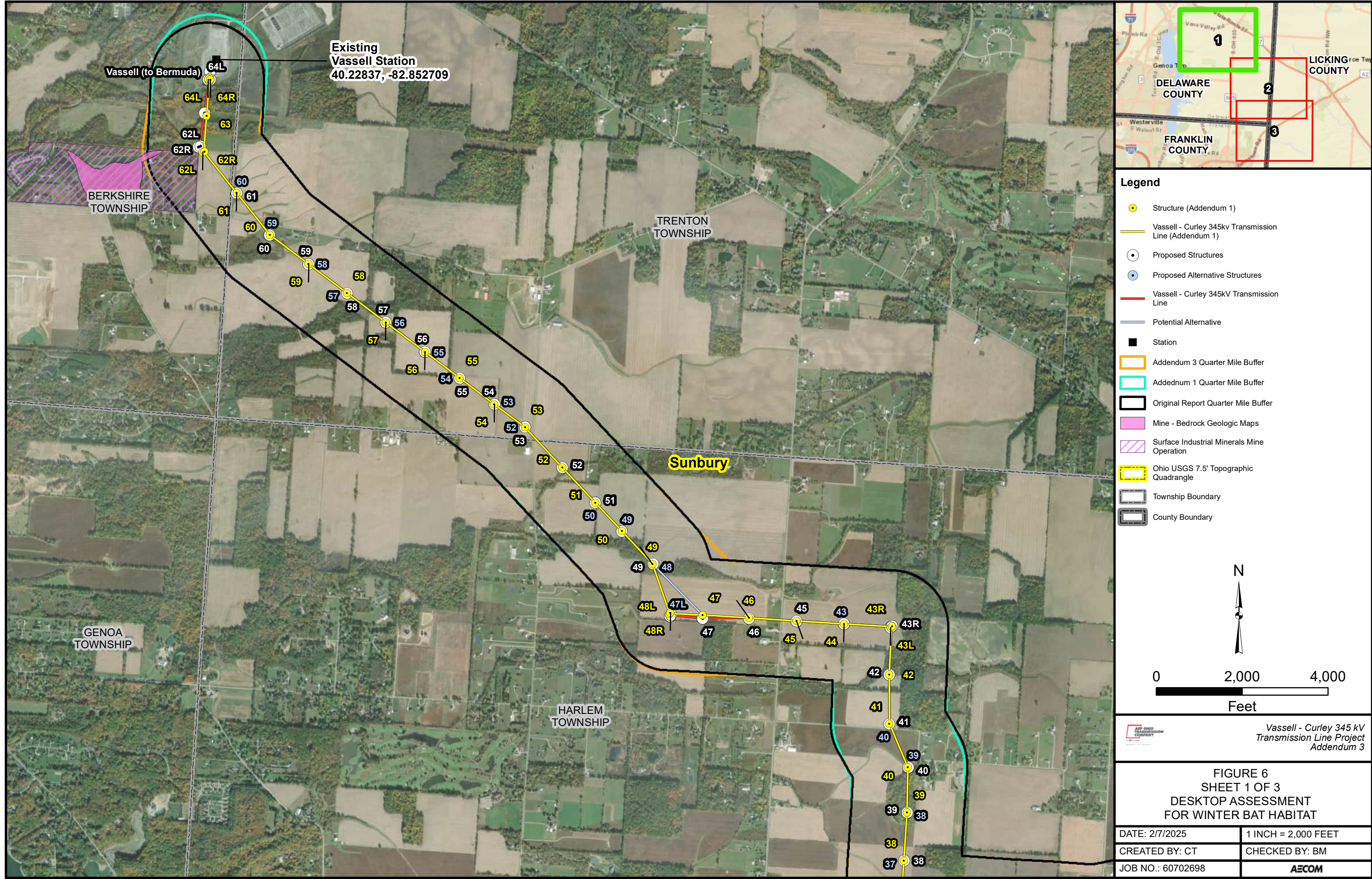
- Landscaped
- Old Field
- Streams/Wetlands
- Urban
- Woodland

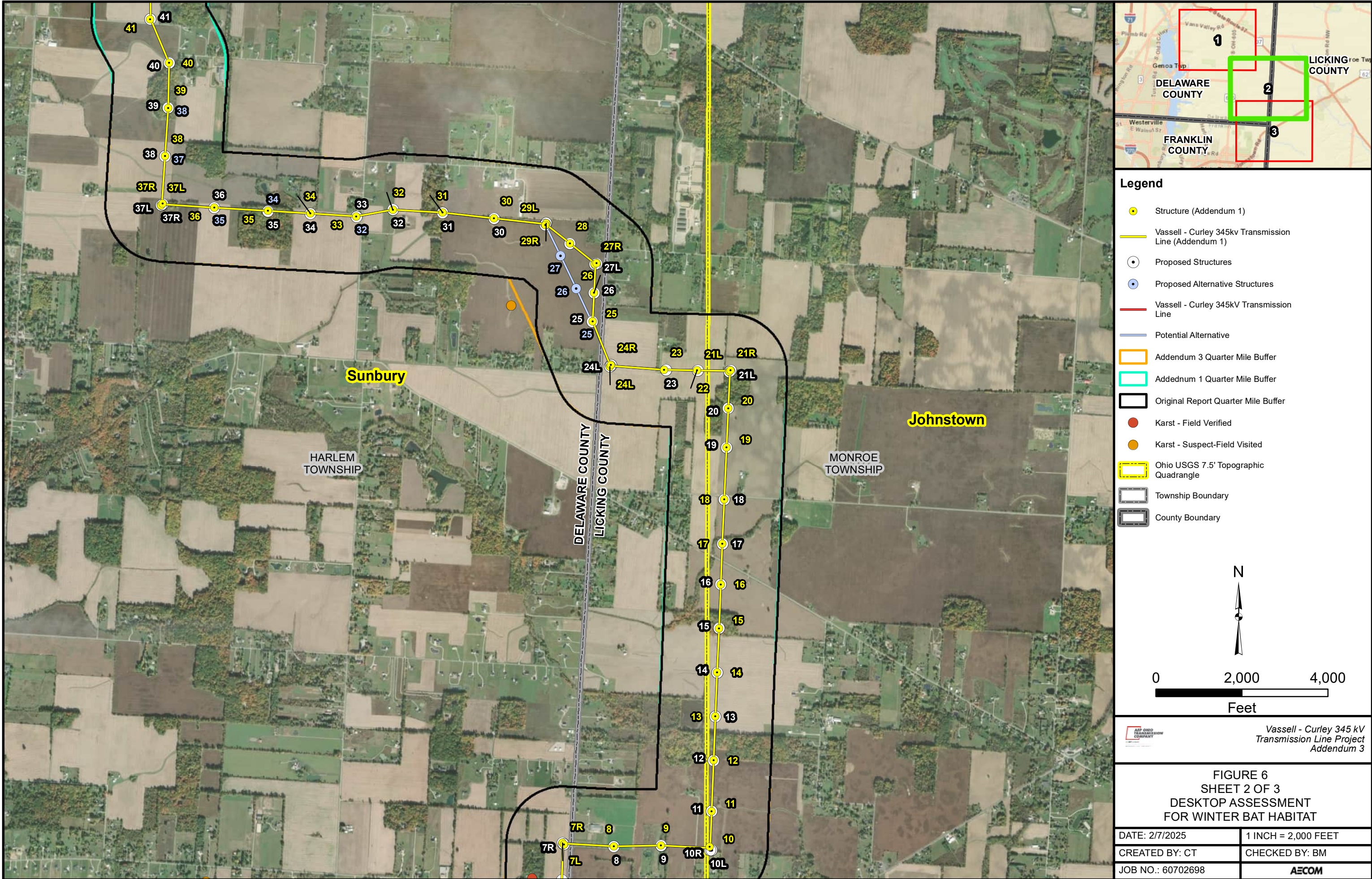


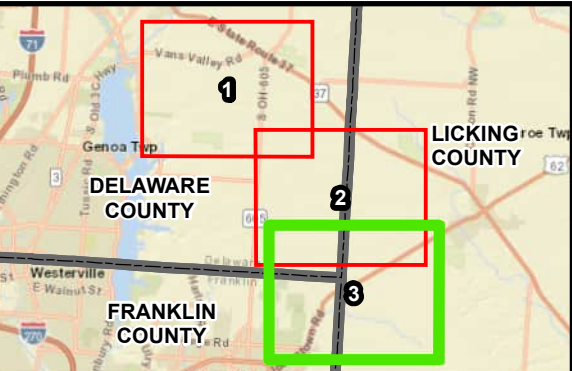
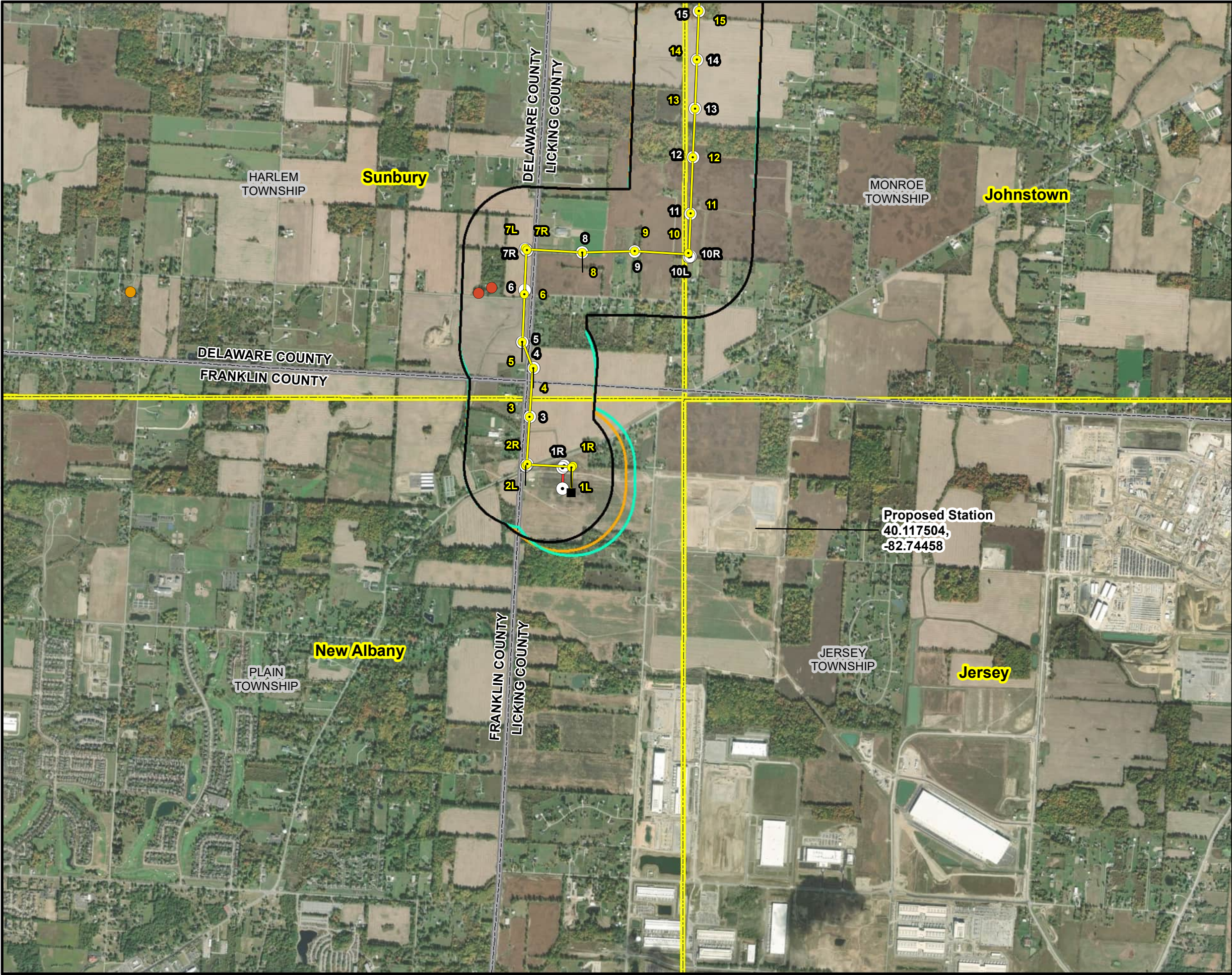
 Vassell - Curley 345 kV
Transmission Line Project
Addendum 3

FIGURE 5 SHEET 28 OF 28 VEGETATIVE COMMUNITIES ASSESSMENT MAP	
DATE: 2/10/2025	1 INCH = 200 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

Date Saved: 2/7/2025
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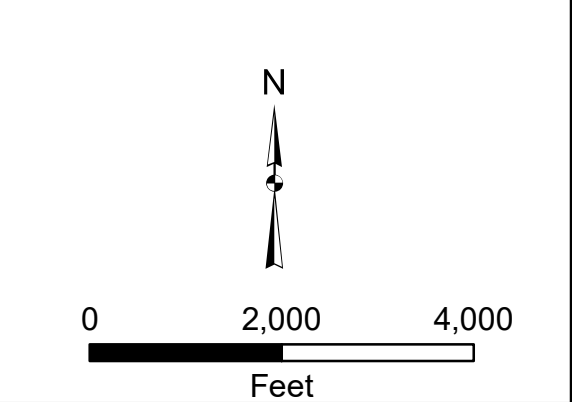






Legend

- Structure (Addendum 1)
- Vassell - Curley 345kV Transmission Line (Addendum 1)
- Proposed Structures
- Vassell - Curley 345kV Transmission Line
- Station
- Addendum 3 Quarter Mile Buffer
- Addendum 1 Quarter Mile Buffer
- Original Report Quarter Mile Buffer
- Karst - Field Verified
- Karst - Suspect-Field Visited
- Ohio USGS 7.5' Topographic Quadrangle
- Township Boundary
- County Boundary



Vassell - Curley 345 kV Transmission Line Project Addendum 3	
FIGURE 6 SHEET 3 OF 3 DESKTOP ASSESSMENT FOR WINTER BAT HABITAT	
DATE: 2/7/2025	1 INCH = 2,000 FEET
CREATED BY: CT	CHECKED BY: BM
JOB NO.: 60702698	AECOM

APPENDIX A**USACE Wetland Data Forms and Photographic Record**

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 15-Jun-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-004 PFO
Investigator(s): MRK, AJH Section, Township, Range: S T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.148161 Long.: -82.748641 Datum: NAD83
Soil Map Unit Name: Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: N/A

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located within a forested depression. Depression is collecting surface runoff from the surrounding area and is seasonally inundated. Wetland boundary follows edge of depression.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>30</u>	<input checked="" type="checkbox"/> 100.0%	<u>FAC</u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u>0</u>
	<u>30</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>20</u>	<input checked="" type="checkbox"/> 66.7%	<u>FAC</u>
2. <u>Ulmus rubra</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	<u>FAC</u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>30</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Toxicodendron radicans</u>	<u>10</u>	<input checked="" type="checkbox"/> 66.7%	<u>FAC</u>
2. <u>Glyceria striata</u>	<u>5</u>	<input checked="" type="checkbox"/> 33.3%	<u>OBL</u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>15</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 5 x 1 = 5
FACW species 0 x 2 = 0
FAC species 70 x 3 = 210
FACU species 0 x 4 = 0
UPL species 0 x 5 = 0
Column Totals: 75 (A) 215 (B)
Prevalence Index = B/A = 2.867

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-004 PFO**

Depth (inches)	Matrix		Redox Features						Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-8	10YR	3/1	100							
8-16	10YR	3/1	90	10YR	4/6	10	C	M,PL	Silty Clay Loam	5% oxidized rhizospheres

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils ³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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

Field Observations:

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

Wetland Hydrology Present? Yes ☒ No ☐

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

NA

Remarks:

The source of hydrology is surface runoff and seasonal flooding.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 15-Jun-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-004-005 UPL
Investigator(s): MRK, AJH Section, Township, Range: S T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
Slope: 1.0% / 0.6 ° Lat.: 40.147817 Long.: -82.748294 Datum: NAD83
Soil Map Unit Name: Centerburg silt loam, 2 to 6 percent slopes NWI classification: N/A

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point collected for W-MRK-004 and W-MRK-005. Upland data was collected within a forested area.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>25</u>	<input checked="" type="checkbox"/> 35.7%	<u>FAC</u>
2. <u>Fagus grandifolia</u>	<u>25</u>	<input checked="" type="checkbox"/> 35.7%	<u>FACU</u>
3. <u>Quercus rubra</u>	<u>20</u>	<input checked="" type="checkbox"/> 28.6%	<u>FACU</u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u>0</u>
	<u>70</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Lindera benzoin</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	<u>FACW</u>
2. <u>Fagus grandifolia</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	<u>FACU</u>
3. <u>Acer rubrum</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	<u>FAC</u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>30</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Parthenocissus quinquefolia</u>	<u>70</u>	<input checked="" type="checkbox"/> 70.0%	<u>FACU</u>
2. <u>Toxicodendron radicans</u>	<u>20</u>	<input checked="" type="checkbox"/> 20.0%	<u>FAC</u>
3. <u>Urtica dioica</u>	<u>10</u>	<input type="checkbox"/> 10.0%	<u>FACW</u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>100</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 8 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 20 x 2 = 40
FAC species 55 x 3 = 165
FACU species 125 x 4 = 500
UPL species 0 x 5 = 0
Column Totals: 200 (A) 705 (B)
Prevalence Index = B/A = 3.525

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-004-005 UPL**

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			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="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____		
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
NA				
Remarks:				
No source of hydrology was observed.				

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 22-Jun-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-009 PFO
Investigator(s): MRK, RBL Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.189848 Long.: -82.79656 Datum: NAD83
Soil Map Unit Name: Pewamo silty clay loam. 0 to 1 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located in a swale like depression within a forested area. Water drains to the depression from the surrounding flat landscape which is primarily agricultural. Wetland is influenced by surface runoff and seasonal inundation.		

Tree Stratum (Plot size: 30' radius)		Absolute % Cover	Species? Rel.Strat. Cover	Indicator Status
1. <i>Quercus palustris</i>	40	<input checked="" type="checkbox"/>	100.0%	FACW
2. _____	0	<input type="checkbox"/>	0.0%	_____
3. _____	0	<input type="checkbox"/>	0.0%	_____
4. _____	0	<input type="checkbox"/>	0.0%	_____
5. _____	0	<input type="checkbox"/>	0.0%	0
	40	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15' radius)		Absolute % Cover	Species? Rel.Strat. Cover	Indicator Status
1. <i>Rosa multiflora</i>	10	<input checked="" type="checkbox"/>	100.0%	FACU
2. _____	0	<input type="checkbox"/>	0.0%	_____
3. _____	0	<input type="checkbox"/>	0.0%	_____
4. _____	0	<input type="checkbox"/>	0.0%	_____
5. _____	0	<input type="checkbox"/>	0.0%	_____
	10	= Total Cover		

Herb Stratum (Plot size: 5' radius)		Absolute % Cover	Species? Rel.Strat. Cover	Indicator Status
1. <i>Carex lupulina</i>	25	<input checked="" type="checkbox"/>	55.6%	OBL
2. <i>Glyceria striata</i>	20	<input checked="" type="checkbox"/>	44.4%	OBL
3. _____	0	<input type="checkbox"/>	0.0%	_____
4. _____	0	<input type="checkbox"/>	0.0%	_____
5. _____	0	<input type="checkbox"/>	0.0%	_____
6. _____	0	<input type="checkbox"/>	0.0%	_____
7. _____	0	<input type="checkbox"/>	0.0%	_____
8. _____	0	<input type="checkbox"/>	0.0%	_____
9. _____	0	<input type="checkbox"/>	0.0%	_____
10. _____	0	<input type="checkbox"/>	0.0%	_____
	45	= Total Cover		

Woody Vine Stratum (Plot size: 30' radius)		Absolute % Cover	Species? Rel.Strat. Cover	Indicator Status
1. <i>Toxicodendron radicans</i>	10	<input checked="" type="checkbox"/>	100.0%	FAC
2. _____	0	<input type="checkbox"/>	0.0%	_____
	10	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	<u>45</u>	x 1 =	<u>45</u>
FACW species	<u>40</u>	x 2 =	<u>80</u>
FAC species	<u>10</u>	x 3 =	<u>30</u>
FACU species	<u>10</u>	x 4 =	<u>40</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column Totals:	<u>105</u>	(A)	<u>195</u> (B)

Prevalence Index = B/A = 1.857

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is > 50%

☒ 3 - Prevalence Index is ≤ 3.0 ¹

☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: (Include photo numbers here or on a separate sheet.)
Areas of sparse vegetation within the depression due to seasonal inundation.

SOIL

Sampling Point: **W-MRK-009 PFO**

Depth (inches)	Matrix		Redox Features					Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-20	10YR	3/1	75	10YR	5/6	25	C	PL	Silty Clay Loam

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils ³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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

Field Observations:

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

Wetland Hydrology Present? Yes ☒ No ☐

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

NA

Remarks:

The source of hydrology is seasonal flooding and surface runoff.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 22-Jun-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-009-010 UPL
Investigator(s): MRK, RBL Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
Slope: 1.0% / 0.6 ° Lat.: 40.189905 Long.: -82.796824 Datum: NAD83
Soil Map Unit Name: Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-009 and W-MRK-010. Upland data was collected within an agricultural field.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Prunus serotina</u>	<u>30</u>	<input checked="" type="checkbox"/> 75.0%	FACU
2. <u>Quercus palustris</u>	<u>10</u>	<input checked="" type="checkbox"/> 25.0%	FACW
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	0
	<u>40</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. <u>Lonicera morrowii</u>	<u>40</u>	<input checked="" type="checkbox"/> 80.0%	FACU
2. <u>Rosa multiflora</u>	<u>10</u>	<input checked="" type="checkbox"/> 20.0%	FACU
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
	<u>50</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Glycine max</u>	<u>50</u>	<input checked="" type="checkbox"/> 66.7%	UPL
2. <u>Toxicodendron radicans</u>	<u>25</u>	<input checked="" type="checkbox"/> 33.3%	FAC
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
	<u>75</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. <u>Toxicodendron radicans</u>	<u>5</u>	<input checked="" type="checkbox"/> 100.0%	FAC
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
	<u>5</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 42.9% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 10 x 2 = 20
FAC species 30 x 3 = 90
FACU species 80 x 4 = 320
UPL species 50 x 5 = 250
Column Totals: 170 (A) 680 (B)
Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Field is planted recently with soybean at forest edge.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-009-010 UPL**

[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="radio"/>	No <input checked="" type="radio"/>	Depth (inches):	_____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Water Table Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>	Depth (inches):	_____		
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/>	No <input checked="" type="radio"/>	Depth (inches):	_____		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:						
NA						
Remarks:						
No source of hydrology was observed.						

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 22-Jun-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-010 PEM
Investigator(s): MRK, RBL Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.1904709 Long.: -82.7964999 Datum: NAD83
Soil Map Unit Name: Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PEM wetland is located in a depression on a former forest trail. Depression extends slightly beyond the trail which is collecting surface runoff from the surrounding area. Wetland extends beyond the current study area.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	0
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Juncus effusus</u>	90	<input checked="" type="checkbox"/> 60.0%	OBL
2. <u>Impatiens capensis</u>	20	<input type="checkbox"/> 13.3%	FACW
3. <u>Microstegium vimineum</u>	20	<input type="checkbox"/> 13.3%	FAC
4. <u>Toxicodendron radicans</u>	10	<input type="checkbox"/> 6.7%	FAC
5. <u>Carex vulpinoidea</u>	10	<input type="checkbox"/> 6.7%	FACW
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	150	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>90</u>	x 1 = <u>90</u>
FACW species <u>30</u>	x 2 = <u>60</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>150</u>	(A) <u>240</u> (B)

Prevalence Index = B/A = 1.600

Hydrophytic Vegetation Indicators:

☒ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is > 50%

☒ 3 - Prevalence Index is ≤ 3.0 ¹

☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-010 PEM**

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			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 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 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="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____		
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
NA				
Remarks:				
The source of hydrology is surface runoff.				

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 27-Jun-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-017 PFO
Investigator(s): MRK, TW Section, Township, Range: S T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
Slope: 1.0% / 0.6 ° Lat.: 40.140428 Long.: -82.749103 Datum: NAD83
Soil Map Unit Name: BeB; Bennington silt loam, 2 to 6 percent slopes NWI classification: PFO1C

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located within a forested depression that is collecting surface runoff. Wetland is seasonally inundated with water based on water stained leaves and debris drift deposits.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer saccharinum</u>	<u>25</u>	<input checked="" type="checkbox"/> 50.0%	<u>FACW</u>
2. <u>Quercus bicolor</u>	<u>25</u>	<input checked="" type="checkbox"/> 50.0%	<u>FACW</u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>50</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Ulmus rubra</u>	<u>10</u>	<input checked="" type="checkbox"/> 100.0%	<u>FAC</u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>10</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>0</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 50 x 2 = 100
FAC species 10 x 3 = 30
FACU species 0 x 4 = 0
UPL species 0 x 5 = 0
Column Totals: 60 (A) 130 (B)
Prevalence Index = B/A = 2.167

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Sparse herb stratum due to seasonal inundation.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: W-MRK-017 PFO

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 27-Jun-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-017-018 UPL
Investigator(s): MRK, TW Section, Township, Range: S T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
Slope: 1.0% / 0.6 ° Lat.: 40.14077 Long.: -82.748993 Datum: NAD83
Soil Map Unit Name: BeB; Bennington silt loam, 2 to 6 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-017 and W-MRK-018. Upland data was collected within an agricultural field.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Zea mays</u>	100	<input checked="" type="checkbox"/> 100.0%	UPL
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	100	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>100</u>	x 5 = <u>500</u>
Column Totals: <u>100</u> (A)	<u>500</u> (B)

Prevalence Index = B/A = 5.000

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☐ 2 - Dominance Test is > 50%

☐ 3 - Prevalence Index is ≤ 3.0 ¹

☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Field is currently planted with corn.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-017-018 UPL**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR	5/3	100				Silty Clay Loam	
12-16	10YR	5/4	100				Silty Clay Loam	

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

Hydric Soil Indicators:

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)		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="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	

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

NA

Remarks:

No source of hydrology was observed.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 27-Jun-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-018 PFO
Investigator(s): MRK, TW Section, Township, Range: S T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
Slope: 1.0% / 0.6 ° Lat.: 40.140132 Long.: -82.749653 Datum: NAD83
Soil Map Unit Name: Pe; Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located within a forested depression that is collecting surface runoff. Wetland is seasonally inundated with water based on water stained leaves and debris drift deposits.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Acer saccharinum</u>	<u>20</u>	<input checked="" type="checkbox"/> 50.0%	<u>FACW</u>	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)
2. <u>Acer rubrum</u>	<u>20</u>	<input checked="" type="checkbox"/> 50.0%	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
	<u>40</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Prevalence Index worksheet:
1. <u>Ulmus rubra</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	<u>FAC</u>	Total % Cover of: Multiply by:
2. <u>Lindera benzoin</u>	<u>20</u>	<input checked="" type="checkbox"/> 66.7%	<u>FACW</u>	OBL species <u>0</u> x 1 = <u>0</u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	FACW species <u>50</u> x 2 = <u>100</u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	FAC species <u>80</u> x 3 = <u>240</u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	FACU species <u>10</u> x 4 = <u>40</u>
	<u>30</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Column Totals: <u>140</u> (A) <u>380</u> (B)
1. <u>Toxicodendron radicans</u>	<u>50</u>	<input checked="" type="checkbox"/> 71.4%	<u>FAC</u>	Prevalence Index = B/A = <u>2.714</u>
2. <u>Parthenocissus quinquefolia</u>	<u>10</u>	<input type="checkbox"/> 14.3%	<u>FACU</u>	
3. <u>Carex intumescens</u>	<u>10</u>	<input type="checkbox"/> 14.3%	<u>FACW</u>	
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
	<u>70</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
	<u>0</u>	= Total Cover		

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Sparse herb stratum due to seasonal inundation.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-018 PFO**

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			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 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 checked="" 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 checked="" 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 checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)				
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____			Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
NA					
Remarks:					
The source of hydrology is seasonal flooding and surface runoff.					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 27-Jun-23
 Applicant/Owner: AEP State: OH Sampling Point: W-MRK-019 PEM
 Investigator(s): MRK, TW Section, Township, Range: S T 3N R 15W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
 Slope: 1.0% / 0.6 ° Lat.: 40.133782 Long.: -82.754779 Datum: NAD83
 Soil Map Unit Name: BeA: Bennington silt loam, 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PEM wetland is located in a depression within a fallow field. Depression is collecting surface runoff which drains and dissipates into the surrounding agricultural fields. Wetland continues outside of the current study area.		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel. Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	0
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
0 = Total Cover			
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Carex vulpinoidea</u>	60	<input checked="" type="checkbox"/> 41.4%	FACW
2. <u>Apocynum cannabinum</u>	40	<input checked="" type="checkbox"/> 27.6%	FAC
3. <u>Juncus tenuis</u>	30	<input checked="" type="checkbox"/> 20.7%	FAC
4. <u>Phalaris arundinacea</u>	10	<input type="checkbox"/> 6.9%	FACW
5. <u>Solidago rugosa</u>	5	<input type="checkbox"/> 3.4%	FAC
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
145 = Total Cover			
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>70</u>	x 2 = <u>140</u>
FAC species <u>75</u>	x 3 = <u>225</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>145</u>	(A) <u>365</u> (B)

Prevalence Index = B/A = 2.517

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is > 50%

☒ 3 - Prevalence Index is ≤ 3.0 ¹

☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-019 PEM**

[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 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 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)							
<div> <div> Field Observations: <div> Surface Water Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Water Table Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Saturation Present? (includes capillary fringe) <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> </div> <div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> </div> </div> <div> Wetland Hydrology Present? <div> Yes <input checked="" type="radio"/> No <input type="radio"/> </div> </div> <tr> <td colspan="3"> Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA </td> </tr> <tr> <td colspan="3"> Remarks: The source of hydrology is surface runoff. </td> </tr>			Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA			Remarks: The source of hydrology is surface runoff.		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA								
Remarks: The source of hydrology is surface runoff.								

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 27-Jun-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-019 UPL
Investigator(s): MRK, TW Section, Township, Range: S T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
Slope: 1.0% / 0.6 ° Lat.: 40.133835 Long.: -82.755622 Datum: NAD83
Soil Map Unit Name: Pe; Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: PEM1A

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-019. Upland data was collected within an agricultural field.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Glycine max</u>	75	<input checked="" type="checkbox"/> 100.0%	UPL
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	75	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 0 x 2 = 0
FAC species 0 x 3 = 0
FACU species 0 x 4 = 0
UPL species 75 x 5 = 375
Column Totals: 75 (A) 375 (B)
Prevalence Index = B/A = 5.000

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Field is currently planted with soybean.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-019 UPL**

[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)	
<div> <div> Field Observations: <div> Surface Water Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Water Table Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Saturation Present? (includes capillary fringe) <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> </div> <div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> </div> <div> Wetland Hydrology Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> </div>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA		
Remarks: No source of hydrology was observed.		

SOIL

Sampling Point: W-MRK-021-PFO

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		
0-8	10YR 3/2	95	10YR 5/4	5	C	PL	Loamy/Clayey	
8-20	10YR 3/2	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (Explain in Remarks)
<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"/> Dark Surface (S7)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if observed):	Hydric Soil Present?	Yes	No
Type: _____ Depth (inches): _____			

Remarks:
Hydric soil is present.

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 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 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 checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
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<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:				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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)				

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

Remarks:
Wetland hydrology is present. The sources of hydrology are precipitation and stream flooding.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp:11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: <u>Vassel Green Chapel Curley</u>	City/County: <u>Delaware County</u>	Sampling Date: <u>01/29/2025</u>
Applicant/Owner: <u>AEP</u>	State: <u>OH</u>	Sampling Point: <u>W-MRK-021-PEM</u>
Investigator(s): <u>AGS/TJK</u>	Section, Township, Range: <u>T4N R17W</u>	
Landform (hillside, terrace, etc.): <u>Floodplain</u>	Local relief (concave, convex, none): <u>Concave</u>	
Slope (%): <u>1</u>	Lat: <u>40.223720</u>	Long: <u>-82.855695</u> Datum: <u>NAD 83</u>
Soil Map Unit Name: <u>SnA: Sloan silt loam, till substratum, 0 to 2 percent slopes, occasionally flooded</u>		NWI classification: <u>None</u>
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>X</u> No <u> </u> (If no, explain in Remarks.)		
Are Vegetation <u>X</u> , Soil <u> </u> , or Hydrology <u> </u> significantly disturbed? Are "Normal Circumstances" present? Yes <u> </u> No <u>X</u>		
Are Vegetation <u> </u> , Soil <u> </u> , or Hydrology <u> </u> 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> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: W-MRK-021 is a PEM, abutting wetland that is located along the riparian zone of S-MRK-020. The vegetation is is disturbed from mowing.	

VEGETATION – Use scientific names of plants.

<table style="width:100%; border-collapse: collapse;"> <tr> <th style="text-align: left;"><u>Tree Stratum</u></th> <th style="text-align: left;">(Plot size: <u>30'</u>)</th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td colspan="3" style="text-align: right;">=Total Cover</td> </tr> </table> <table style="width:100%; border-collapse: collapse;"> <tr> <th style="text-align: left;"><u>Sapling/Shrub Stratum</u></th> <th style="text-align: left;">(Plot size: <u>15'</u>)</th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1.</td><td><u>Rosa multiflora</u></td><td style="text-align: center;">5</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACU</td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td colspan="3" style="text-align: right;">5 =Total Cover</td> </tr> </table> <table style="width:100%; border-collapse: collapse;"> <tr> <th style="text-align: left;"><u>Herb Stratum</u></th> <th style="text-align: left;">(Plot size: <u>5'</u>)</th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1.</td><td><u>Phalaris arundinacea</u></td><td style="text-align: center;">80</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACW</td></tr> <tr><td>2.</td><td><u>Verbesina alternifolia</u></td><td style="text-align: center;">10</td><td style="text-align: center;">No</td><td style="text-align: center;">FACW</td></tr> <tr><td>3.</td><td><u>Ludwigia alternifolia</u></td><td style="text-align: center;">5</td><td style="text-align: center;">No</td><td style="text-align: center;">OBL</td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr><td>6.</td><td></td><td></td><td></td><td></td></tr> <tr><td>7.</td><td></td><td></td><td></td><td></td></tr> <tr><td>8.</td><td></td><td></td><td></td><td></td></tr> <tr><td>9.</td><td></td><td></td><td></td><td></td></tr> <tr><td>10.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td colspan="3" style="text-align: right;">95 =Total Cover</td> </tr> </table> <table style="width:100%; border-collapse: collapse;"> <tr> <th style="text-align: left;"><u>Woody Vine Stratum</u></th> <th style="text-align: left;">(Plot size: <u>30'</u>)</th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td colspan="3" style="text-align: right;">=Total Cover</td> </tr> </table>	<u>Tree Stratum</u>	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	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SOIL

Sampling Point: W-MRK-021-PEM

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		
0-6	10YR 3/2	95	7.5YR 5/4	5	C	PL	Loamy/Clayey	
6-20	10YR 3/2	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)	
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<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Redox Depressions (F8)		

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

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

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 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 checked="" 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 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? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
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)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A					
Remarks: Wetland hydrology is present. The sources of hydrology are precipitation and stream flooding.					

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp:11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: <u>Vassel Green Chapel Curley</u>	City/County: <u>Delaware County</u>	Sampling Date: <u>01/29/2025</u>
Applicant/Owner: <u>AEP</u>	State: <u>OH</u>	Sampling Point: <u>W-MRK-021-UPL</u>
Investigator(s): <u>AGS/TJK</u>	Section, Township, Range: <u>T4N R17W</u>	
Landform (hillside, terrace, etc.): <u>Hillslope</u>	Local relief (concave, convex, none): <u>Convex</u>	
Slope (%): <u>2</u>	Lat: <u>40.223499</u>	Long: <u>-82.855091</u> Datum: <u>NAD 83</u>
Soil Map Unit Name: <u>Cen1B1: Centerburg silt loam, 2 to 6 percent slopes</u>		NWI classification: <u>None</u>
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>X</u> No <u> </u> (If no, explain in Remarks.)		
Are Vegetation <u>X</u> , Soil <u> </u> , or Hydrology <u> </u> significantly disturbed? Are "Normal Circumstances" present? Yes <u> </u> No <u>X</u>		
Are Vegetation <u> </u> , Soil <u> </u> , or Hydrology <u> </u> 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> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: W-MRK-021-UPL is an upland data point located in an old field habitat and within a transmission line ROW. The vegetation is disturbed from mowing.	

VEGETATION – Use scientific names of plants.

<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Tree Stratum</th> <th style="text-align: left;">(Plot size: <u>30'</u>)</th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">=Total Cover</td> <td></td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Sapling/Shrub Stratum</th> <th style="text-align: left;">(Plot size: <u>15'</u>)</th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1.</td><td><u>Rubus allegheniensis</u></td><td style="text-align: center;">20</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACU</td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">20 =Total Cover</td> <td></td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Herb Stratum</th> <th style="text-align: left;">(Plot size: <u>5'</u>)</th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1.</td><td><u>Phalaris arundinacea</u></td><td style="text-align: center;">35</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACW</td></tr> <tr><td>2.</td><td><u>Tridens flavus</u></td><td style="text-align: center;">30</td><td style="text-align: center;">Yes</td><td style="text-align: center;">UPL</td></tr> <tr><td>3.</td><td><u>Setaria viridis</u></td><td style="text-align: center;">15</td><td style="text-align: center;">No</td><td style="text-align: center;">UPL</td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr><td>6.</td><td></td><td></td><td></td><td></td></tr> <tr><td>7.</td><td></td><td></td><td></td><td></td></tr> <tr><td>8.</td><td></td><td></td><td></td><td></td></tr> <tr><td>9.</td><td></td><td></td><td></td><td></td></tr> <tr><td>10.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">80 =Total Cover</td> <td></td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Woody Vine Stratum</th> <th style="text-align: left;">(Plot size: <u>30'</u>)</th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">=Total Cover</td> <td></td> <td></td> </tr> </table>	Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	1.					2.					3.					4.					5.							=Total Cover			Sapling/Shrub Stratum	(Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	1.	<u>Rubus allegheniensis</u>	20	Yes	FACU	2.					3.					4.					5.							20 =Total Cover			Herb Stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	1.	<u>Phalaris arundinacea</u>	35	Yes	FACW	2.	<u>Tridens flavus</u>	30	Yes	UPL	3.	<u>Setaria viridis</u>	15	No	UPL	4.					5.					6.					7.					8.					9.					10.							80 =Total Cover			Woody Vine Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	1.					2.							=Total Cover			<div> 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>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B) </div> <div> Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>35</u></td> <td>x 2 = <u>70</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>20</u></td> <td>x 4 = <u>80</u></td> </tr> <tr> <td>UPL species <u>45</u></td> <td>x 5 = <u>225</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>375</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.75</u></td> </tr> </table> </div> <div> Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0¹ <u> </u> 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. </div> <div> Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> </div>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>35</u>	x 2 = <u>70</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>20</u>	x 4 = <u>80</u>	UPL species <u>45</u>	x 5 = <u>225</u>	Column Totals: <u>100</u> (A)	<u>375</u> (B)	Prevalence Index = B/A = <u>3.75</u>	
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Remarks: (Include photo numbers here or on a separate sheet.) A preponderance of hydrophytic vegetation is not present. The vegetation is disturbed from mowing.																																																																																																																																																																							

SOIL

Sampling Point: W-MRK-021-UPL

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		
0-20	10YR 3/2	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Redox Depressions (F8)
	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
Remarks: Hydric soil is not present.	

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): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A	
Remarks: Wetland hydrology is not present.	

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 11-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-O23 PEM
Investigator(s): MRK, KRS Section, Township, Range: S T 4N R 16W
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): concave
Slope: 2.0% / 1.1 ° Lat.: 40.21723 Long.: -82.84852 Datum: NAD83
Soil Map Unit Name: PwA : Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PEM wetland is located within a hillside depression that is collecting surface runoff and flow from an intermittent watercourse that loses its banks at certain areas of the wetland. The wetland boundary follows edge of depression.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	100	<input checked="" type="checkbox"/> 74.1%	FACW
2. Persicaria sagittata	25	<input type="checkbox"/> 18.5%	OBL
3. Impatiens capensis	10	<input type="checkbox"/> 7.4%	FACW
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	135	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 25 x 1 = 25
FACW species 110 x 2 = 220
FAC species 0 x 3 = 0
FACU species 0 x 4 = 0
UPL species 0 x 5 = 0
Column Totals: 135 (A) 245 (B)
Prevalence Index = B/A = 1.815

Hydrophytic Vegetation Indicators:
☒ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: W-MRK-023 PEM

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 11-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-023 UPL
Investigator(s): MRK, KRS Section, Township, Range: S T 4N R 16W
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex
Slope: 2.0% / 1.1 ° Lat.: 40.21713 Long.: -82.84817 Datum: NAD83
Soil Map Unit Name: Cen1B1 : Centerburg silt loam, 2 to 6 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-023. Upland data was collected within a hayfield.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	0
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Dactylis glomerata</u>	100	<input checked="" type="checkbox"/> 71.4%	FACU
2. <u>Cirsium arvense</u>	20	<input type="checkbox"/> 14.3%	FACU
3. <u>Plantago major</u>	10	<input type="checkbox"/> 7.1%	FAC
4. <u>Setaria pumila</u>	10	<input type="checkbox"/> 7.1%	FAC
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	140	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 0 x 2 = 0
FAC species 20 x 3 = 60
FACU species 120 x 4 = 480
UPL species 0 x 5 = 0
Column Totals: 140 (A) 540 (B)
Prevalence Index = B/A = 3.857

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Hydrophytic vegetation indicators are not present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: W-MRK-023 UPL

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers Midwest Region - Version 2.0

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 12-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-024 PSS
Investigator(s): MRK, KRS Section, Township, Range: S T 4N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.21279 Long.: -82.84142 Datum: NAD83
Soil Map Unit Name: SsA : Smothers silt loam, 0 to 2 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PSS wetland is located in a depression on the existing transmission line right-of-way. Depression is collecting surface runoff and is also seasonally flooded by an intermittent watercourse that flows through the wetland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>30'</u> radius)				
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)				
1. <u>Cornus amomum</u>	20	<input checked="" type="checkbox"/> 50.0%	FACW	
2. <u>Quercus palustris</u>	20	<input checked="" type="checkbox"/> 50.0%	FACW	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
	40	= Total Cover		
Herb Stratum (Plot size: <u>5'</u> radius)				
1. <u>Phalaris arundinacea</u>	100	<input checked="" type="checkbox"/> 100.0%	FACW	
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
	100	= Total Cover		
Woody Vine Stratum (Plot size: <u>30'</u> radius)				
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		
Dominance Test worksheet:				
Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u>				(A)
Total Number of Dominant Species Across All Strata: <u>3</u>				(B)
Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u>				(A/B)
Prevalence Index worksheet:				
Total % Cover of:				Multiply by:
OBL species <u>0</u>				x 1 = <u>0</u>
FACW species <u>140</u>				x 2 = <u>280</u>
FAC species <u>0</u>				x 3 = <u>0</u>
FACU species <u>0</u>				x 4 = <u>0</u>
UPL species <u>0</u>				x 5 = <u>0</u>
Column Totals: <u>140</u>				(A) <u>280</u> (B)
Prevalence Index = B/A = <u>2.000</u>				
Hydrophytic Vegetation Indicators:				
<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation				
<input checked="" type="checkbox"/> 2 - Dominance Test is > 50%				
<input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹				
<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)				
<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				

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

Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: W-MRK-024 PSS

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 12-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-024 UPL
Investigator(s): MRK, KRS Section, Township, Range: S T 4N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): convex
Slope: 1.0% / 0.6 ° Lat.: 40.21304 Long.: -82.84155 Datum: NAD83
Soil Map Unit Name: SsA : Smothers silt loam, 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-024. Upland data was collected within an agricultural field.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. Glycine max	75	<input checked="" type="checkbox"/> 75.0%	UPL
2. Panicum virgatum	25	<input checked="" type="checkbox"/> 25.0%	FAC
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	100	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 0 x 2 = 0
FAC species 25 x 3 = 75
FACU species 0 x 4 = 0
UPL species 75 x 5 = 375
Column Totals: 100 (A) 450 (B)
Prevalence Index = B/A = 4.500

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Hydrophytic vegetation indicators are not present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-024 UPL**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR	5/3	100				Silty Clay Loam	

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

Hydric Soil Indicators:

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Hydric soil indicators are absent.

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

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

NA

Remarks:

No source of hydrology was observed. No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 12-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-025 PFO
Investigator(s): MRK, KRS Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.19767 Long.: -82.81806 Datum: NAD83
Soil Map Unit Name: PwA : Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located in a depression. Depression is seasonally flooded. The wetland boundary follows edge of depression and hydrophytic vegetation dominated by <i>Quercus palustris</i> .	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Quercus palustris</i>	50	<input checked="" type="checkbox"/> 100.0%	FACW
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	0
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Ulmus rubra</i>	25	<input checked="" type="checkbox"/> 71.4%	FAC
2. <i>Quercus palustris</i>	10	<input checked="" type="checkbox"/> 28.6%	FACW
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	35	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Microstegium vimineum</i>	50	<input checked="" type="checkbox"/> 55.6%	FAC
2. <i>Urtica dioica</i>	20	<input checked="" type="checkbox"/> 22.2%	FACW
3. <i>Agrimonia parviflora</i>	10	<input type="checkbox"/> 11.1%	FACW
4. <i>Parthenocissus quinquefolia</i>	10	<input type="checkbox"/> 11.1%	FACU
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	90	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 90 x 2 = 180
FAC species 75 x 3 = 225
FACU species 10 x 4 = 40
UPL species 0 x 5 = 0
Column Totals: 175 (A) 445 (B)
Prevalence Index = B/A = 2.543

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-025 PFO**

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			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 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 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 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 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="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____		
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
NA				
Remarks:				
The source of hydrology is seasonal flooding and surface runoff. Several primary and secondary hydrology indicators are present.				

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 12-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-025 UPL
Investigator(s): MRK, KRS Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): convex
Slope: 1.0% / 0.6 ° Lat.: 40.19777 Long.: -82.81802 Datum: NAD83
Soil Map Unit Name: PwA : Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-025. Upland data was collected between a forested area and agricultural field.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Quercus palustris</u>	<u>10</u>	<input checked="" type="checkbox"/> 100.0%	<u>FACW</u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>10</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. <u>Rosa multiflora</u>	<u>50</u>	<input checked="" type="checkbox"/> 100.0%	<u>FACU</u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>50</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Glycine max</u>	<u>80</u>	<input checked="" type="checkbox"/> 100.0%	<u>UPL</u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>80</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 10 x 2 = 20
FAC species 0 x 3 = 0
FACU species 50 x 4 = 200
UPL species 80 x 5 = 400
Column Totals: 140 (A) 620 (B)
Prevalence Index = B/A = 4.429

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Hydrophytic vegetation indicators are not present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: W-MRK-025 UPL

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers

SOIL

Sampling Point: **W-MRK-027 PEM**

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

[illegible]

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

Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils ³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soil indicator is present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☒ No ☐

Water Table Present? Yes ☒ No ☐

Saturation Present? (includes capillary fringe) Yes ☒ No ☐

Depth (inches): 4

Depth (inches): 0

Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

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

NA

Remarks:

The source of hydrology is surface runoff. Several primary hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 13-Sep-23
 Applicant/Owner: AEP State: OH Sampling Point: **W-MRK-027 UPL**
 Investigator(s): MRK, KRS Section, Township, Range: S T 3N R 16W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
 Slope: 1.0% / 0.6 ° Lat.: 40.17425 Long.: -82.79408 Datum: NAD83
 Soil Map Unit Name: PwA : Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-027. Upland data was collected within an agricultural field near the forest edge.		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:	
1. <u>Juglans nigra</u>	25	<input checked="" type="checkbox"/> 71.4%	FACU	Number of Dominant Species That are OBL, FACW, or FAC:	<u>0</u> (A)
2. <u>Quercus rubra</u>	10	<input checked="" type="checkbox"/> 28.6%	FACU	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3. <u> </u>	0	<input type="checkbox"/> 0.0%		Percent of dominant Species That Are OBL, FACW, or FAC:	<u>0.0%</u> (A/B)
4. <u> </u>	0	<input type="checkbox"/> 0.0%			
5. <u> </u>	0	<input type="checkbox"/> 0.0%			
	35	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet:	
1. <u> </u>	0	<input type="checkbox"/> 0.0%		Total % Cover of:	Multiply by:
2. <u> </u>	0	<input type="checkbox"/> 0.0%		OBL species <u>0</u>	x 1 = <u>0</u>
3. <u> </u>	0	<input type="checkbox"/> 0.0%		FACW species <u>0</u>	x 2 = <u>0</u>
4. <u> </u>	0	<input type="checkbox"/> 0.0%		FAC species <u>0</u>	x 3 = <u>0</u>
5. <u> </u>	0	<input type="checkbox"/> 0.0%		FACU species <u>35</u>	x 4 = <u>140</u>
	0	= Total Cover		UPL species <u>100</u>	x 5 = <u>500</u>
Herb Stratum (Plot size: 5' radius)				Column Totals:	<u>135</u> (A) <u>640</u> (B)
1. <u>Glycine max</u>	100	<input checked="" type="checkbox"/> 100.0%	UPL	Prevalence Index = B/A = <u>4.741</u>	
2. <u> </u>	0	<input type="checkbox"/> 0.0%			
3. <u> </u>	0	<input type="checkbox"/> 0.0%			
4. <u> </u>	0	<input type="checkbox"/> 0.0%			
5. <u> </u>	0	<input type="checkbox"/> 0.0%			
6. <u> </u>	0	<input type="checkbox"/> 0.0%			
7. <u> </u>	0	<input type="checkbox"/> 0.0%			
8. <u> </u>	0	<input type="checkbox"/> 0.0%			
9. <u> </u>	0	<input type="checkbox"/> 0.0%			
10. <u> </u>	0	<input type="checkbox"/> 0.0%			
	100	= Total Cover			
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Indicators:	
1. <u> </u>	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
2. <u> </u>	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> 2 - Dominance Test is > 50%	
	0	= Total Cover		<input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹	
				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Remarks: (Include photo numbers here or on a separate sheet.) Hydrophytic vegetation indicators are not present.				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-027 UPL**

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> 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="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA		
Remarks: No source of hydrology was observed. Hydrology indicators were not osbserved.		

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 13-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-028 PFO
Investigator(s): MRK, KRS Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.17378 Long.: -82.78747 Datum: NAD83
Soil Map Unit Name: PwA : Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located within a large forested depression that is collecting surface runoff from the surrounding area. Wetland is seasonally inundated which was observed based on water stained leaves in the depression.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>70</u>	<input checked="" type="checkbox"/> 100.0%	<u>FAC</u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>70</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	<u>FAC</u>
2. <u>Ulmus rubra</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	<u>FAC</u>
3. <u>Lindera benzoin</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	<u>FACW</u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>30</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Carex intumescens</u>	<u>20</u>	<input checked="" type="checkbox"/> 50.0%	<u>FACW</u>
2. <u>Urtica dioica</u>	<u>20</u>	<input checked="" type="checkbox"/> 50.0%	<u>FACW</u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>40</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 50 x 2 = 100
FAC species 90 x 3 = 270
FACU species 0 x 4 = 0
UPL species 0 x 5 = 0
Column Totals: 140 (A) 370 (B)
Prevalence Index = B/A = 2.643

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-028 PFO**

Depth (inches)	Matrix		Redox Features					Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-1	10YR	2/2	100					Silt Loam	
1-16	2.5Y	2.5/1	80	2.5Y	5/6	20	C	M,PL	10% oxidized rhizospheres

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils ³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soil indicator is present.

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 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 checked="" 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 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 checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations:

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

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

NA

Remarks:

The source of hydrology is surface runoff. Several primary and secondary indicators are present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 13-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-028-029 UPL
Investigator(s): MRK, KRS Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex
Slope: 2.0% / 1.1 ° Lat.: 40.17375 Long.: -82.78637 Datum: NAD83
Soil Map Unit Name: PwA : Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-028 and W-MRK-029. Upland data was collected within a forested area.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>25</u>	<input checked="" type="checkbox"/> 29.4%	<u>FAC</u>
2. <u>Carya ovata</u>	<u>30</u>	<input checked="" type="checkbox"/> 35.3%	<u>FACU</u>
3. <u>Acer saccharum</u>	<u>30</u>	<input checked="" type="checkbox"/> 35.3%	<u>FACU</u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>85</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer saccharum</u>	<u>15</u>	<input checked="" type="checkbox"/> 75.0%	<u>FACU</u>
2. <u>Lindera benzoin</u>	<u>5</u>	<input checked="" type="checkbox"/> 25.0%	<u>FACW</u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>20</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>0</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 5 x 2 = 10
FAC species 25 x 3 = 75
FACU species 75 x 4 = 300
UPL species 0 x 5 = 0
Column Totals: 105 (A) 385 (B)
Prevalence Index = B/A = 3.667

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

No hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-028-029 UPL**

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			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)			
<div> <div> Field Observations: <div> Surface Water Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Water Table Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Saturation Present? (includes capillary fringe) <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> </div> <div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> </div> <div> Wetland Hydrology Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> </div>				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA				
Remarks: No source of hydrology was observed. No hydrology indicators observed.				

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 13-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-029 PFO
Investigator(s): MRK, KRS Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.17388 Long.: -82.78568 Datum: NAD83
Soil Map Unit Name: PwA : Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located within a large forested depression that is collecting surface runoff from the surrounding area. Wetland is seasonally inundated which was observed based on water stained leaves in the depression.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>40</u>	<input checked="" type="checkbox"/> 61.5%	FAC
2. <u>Acer saccharinum</u>	<u>25</u>	<input checked="" type="checkbox"/> 38.5%	FACW
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	0
	<u>65</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	FAC
2. <u>Ulmus rubra</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	FAC
3. <u>Lindera benzoin</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	FACW
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
	<u>30</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Carex intumescens</u>	<u>20</u>	<input checked="" type="checkbox"/> 28.6%	FACW
2. <u>Urtica dioica</u>	<u>20</u>	<input checked="" type="checkbox"/> 28.6%	FACW
3. <u>Microstegium vimineum</u>	<u>20</u>	<input checked="" type="checkbox"/> 28.6%	FAC
4. <u>Onoclea sensibilis</u>	<u>10</u>	<input type="checkbox"/> 14.3%	FACW
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
	<u>70</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 8 (A)
Total Number of Dominant Species Across All Strata: 8 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 85 x 2 = 170
FAC species 80 x 3 = 240
FACU species 0 x 4 = 0
UPL species 0 x 5 = 0
Column Totals: 165 (A) 410 (B)
Prevalence Index = B/A = 2.485

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-029 PFO**

Depth (inches)	Matrix		Redox Features					Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-1	10YR	2/2	100					Silt Loam	
1-16	2.5Y	2.5/1	90	2.5Y	5/6	10	C	M,PL	5% oxidized rhizospheres

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils ³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soil indicator is present.

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

Field Observations:

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

Wetland Hydrology Present? Yes ☒ No ☐

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

NA

Remarks:

The source of hydrology is surface runoff. Several primary and secondary hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 13-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-O30 PEM
Investigator(s): MRK, KRS Section, Township, Range: S 15 T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.16174 Long.: -82.74871 Datum: NAD83
Soil Map Unit Name: Pe : Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PEM section of a PEM/PFO wetland complex is located in a depression between two separate PFO sections. Surface runoff drains out of the PFO section to the south, flows into the PEM, and flows north into another PFO section.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Scirpus atrovirens</u>	50	<input checked="" type="checkbox"/> 33.3%	OBL
2. <u>Scirpus cyperinus</u>	15	<input type="checkbox"/> 10.0%	OBL
3. <u>Impatiens capensis</u>	15	<input type="checkbox"/> 10.0%	FACW
4. <u>Eupatorium perfoliatum</u>	25	<input checked="" type="checkbox"/> 16.7%	OBL
5. <u>Ambrosia artemisiifolia</u>	20	<input checked="" type="checkbox"/> 13.3%	FACU
6. <u>Persicaria sagittata</u>	10	<input type="checkbox"/> 6.7%	OBL
7. <u>Juncus effusus</u>	10	<input type="checkbox"/> 6.7%	OBL
8. <u>Phalaris arundinacea</u>	5	<input type="checkbox"/> 3.3%	FACW
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	150	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 110 x 1 = 110
FACW species 20 x 2 = 40
FAC species 0 x 3 = 0
FACU species 20 x 4 = 80
UPL species 0 x 5 = 0
Column Totals: 150 (A) 230 (B)
Prevalence Index = B/A = 1.533

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≥ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: **W-MRK-030 PEM**

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers Midwest Region - Version 2.0

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 13-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-030 PFO
Investigator(s): MRK, KRS Section, Township, Range: S 15 T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.16161 Long.: -82.74894 Datum: NAD83
Soil Map Unit Name: Pe : Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO section of a PEM/PFO wetland complex is located in a depression surrounding a PEM section. Surface runoff drains out of the PFO section to the south, flows into the PEM, and flows north into another PFO section.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>30</u>	<input checked="" type="checkbox"/> 50.0%	<u>FAC</u>
2. <u>Acer saccharinum</u>	<u>30</u>	<input checked="" type="checkbox"/> 50.0%	<u>FACW</u>
3. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
4. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
5. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>60</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Ulmus rubra</u>	<u>25</u>	<input checked="" type="checkbox"/> 45.5%	<u>FAC</u>
2. <u>Acer rubrum</u>	<u>25</u>	<input checked="" type="checkbox"/> 45.5%	<u>FAC</u>
3. <u>Lindera benzoin</u>	<u>5</u>	<input type="checkbox"/> 9.1%	<u>FACW</u>
4. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
5. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>55</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Toxicodendron radicans</u>	<u>50</u>	<input checked="" type="checkbox"/> 55.6%	<u>FAC</u>
2. <u>Urtica dioica</u>	<u>5</u>	<input type="checkbox"/> 5.6%	<u>FACW</u>
3. <u>Impatiens capensis</u>	<u>15</u>	<input type="checkbox"/> 16.7%	<u>FACW</u>
4. <u>Carex intumescens</u>	<u>20</u>	<input checked="" type="checkbox"/> 22.2%	<u>FACW</u>
5. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
6. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
7. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
8. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
9. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
10. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>90</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
2. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 75 x 2 = 150
FAC species 130 x 3 = 390
FACU species 0 x 4 = 0
UPL species 0 x 5 = 0
Column Totals: 205 (A) 540 (B)
Prevalence Index = B/A = 2.634

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-030 PFO**

[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 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 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="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
NA			
Remarks:			
The source of hydrology is surface runoff.			

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 13-Sep-23

Applicant/Owner: AEP State: OH Sampling Point: W-MRK-030 UPL

Investigator(s): MRK, KRS Section, Township, Range: S 15 T 3N R 15W

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

Slope: 1.0% / 0.6 ° Lat.: 40.16054 Long.: -82.74862 Datum: NAD83

Soil Map Unit Name: Pe : Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-030. Upland data was collected within an agricultural field next to the forest edge.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Zea mays</u>	100	<input checked="" type="checkbox"/> 83.3%	UPL
2. <u>Xanthium strumarium</u>	10	<input type="checkbox"/> 8.3%	FAC
3. <u>Cyperus esculentus</u>	10	<input type="checkbox"/> 8.3%	FACW
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	120	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>100</u>	x 5 = <u>500</u>
Column Totals: <u>120</u> (A)	<u>550</u> (B)

Prevalence Index = B/A = 4.583

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☐ 2 - Dominance Test is > 50%

☐ 3 - Prevalence Index is ≤ 3.0 ¹

☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Hydrophytic vegetation indicators are not present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: W-MRK-030 UPL

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 14-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-031 PFO
Investigator(s): MRK, KRS Section, Township, Range: S 25 T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.14055 Long.: -82.74988 Datum: NAD83
Soil Map Unit Name: BeB : Bennington silt loam, 2 to 6 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located within a forested area surrounded by agriculture. The wetland is collecting surface runoff from the surrounding area. The wetland boundary follows edge of depression and water stained leaves.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer saccharinum</u>	<u>60</u>	<input checked="" type="checkbox"/> 100.0%	<u>FACW</u>
2. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
3. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
4. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
5. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>60</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Ulmus rubra</u>	<u>10</u>	<input checked="" type="checkbox"/> 40.0%	<u>FAC</u>
2. <u>Carya glabra</u>	<u>10</u>	<input checked="" type="checkbox"/> 40.0%	<u>FACU</u>
3. <u>Smilax rotundifolia</u>	<u>5</u>	<input checked="" type="checkbox"/> 20.0%	<u>FAC</u>
4. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
5. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>25</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
2. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
3. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
4. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
5. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
6. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
7. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
8. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
9. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
10. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>0</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
2. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 60 x 2 = 120
FAC species 15 x 3 = 45
FACU species 10 x 4 = 40
UPL species 0 x 5 = 0
Column Totals: 85 (A) 205 (B)
Prevalence Index = B/A = 2.412

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: W-MRK-031 PFO

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers Midwest Region - Version 2.0

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 14-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-031 UPL
Investigator(s): MRK, KRS Section, Township, Range: S 25 T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
Slope: 1.0% / 0.6 ° Lat.: 40.14040 Long.: -82.74983 Datum: NAD83
Soil Map Unit Name: BeB : Bennington silt loam, 2 to 6 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-031. Upland data was collected within an upland forest.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Quercus rubra</u>	<u>50</u>	<input checked="" type="checkbox"/> 100.0%	<u>FACU</u>
2. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
3. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
4. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
5. _____	<u>0</u>	<input type="checkbox"/> 0.0%	<u>0</u>
	<u>50</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Carya glabra</u>	<u>35</u>	<input checked="" type="checkbox"/> 43.8%	<u>FACU</u>
2. <u>Smilax rotundifolia</u>	<u>35</u>	<input checked="" type="checkbox"/> 43.8%	<u>FAC</u>
3. <u>Ulmus rubra</u>	<u>10</u>	<input type="checkbox"/> 12.5%	<u>FAC</u>
4. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
5. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>80</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Parthenocissus quinquefolia</u>	<u>60</u>	<input checked="" type="checkbox"/> 100.0%	<u>FACU</u>
2. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
3. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
4. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
5. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
6. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
7. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
8. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
9. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
10. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>60</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
2. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____
	<u>0</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 0 x 2 = 0
FAC species 45 x 3 = 135
FACU species 145 x 4 = 580
UPL species 0 x 5 = 0
Column Totals: 190 (A) 715 (B)
Prevalence Index = B/A = 3.763

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

No hydrophytic vegetation indicator present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-031 UPL**

[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)							
<div> <div> Field Observations: <div> Surface Water Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Water Table Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Saturation Present? (includes capillary fringe) <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> </div> <div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> </div> </div> <div> Wetland Hydrology Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <tr> <td colspan="3"> Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA </td> </tr> <tr> <td colspan="3"> Remarks: No source of hydrology was observed. No hydrology indicators observed. </td> </tr>			Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA			Remarks: No source of hydrology was observed. No hydrology indicators observed.		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA								
Remarks: No source of hydrology was observed. No hydrology indicators observed.								

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 14-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-O32 PEM
Investigator(s): MRK, KRS Section, Township, Range: S 25 T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.13307 Long.: -82.75424 Datum: NAD83
Soil Map Unit Name: Pe : Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PEM wetland is located in a depression within a pasture. The depression is collecting surface runoff and overflow from an adjacent pond. The wetland boundary follows the edge of depression.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	0
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Epilobium coloratum</u>	35	<input checked="" type="checkbox"/> 23.3%	OBL
2. <u>Lysimachia nummularia</u>	35	<input checked="" type="checkbox"/> 23.3%	FACW
3. <u>Carex vulpinoidea</u>	30	<input checked="" type="checkbox"/> 20.0%	FACW
4. <u>Leersia oryzoides</u>	25	<input type="checkbox"/> 16.7%	OBL
5. <u>Panicum virgatum</u>	15	<input type="checkbox"/> 10.0%	FAC
6. <u>Phalaris arundinacea</u>	10	<input type="checkbox"/> 6.7%	FACW
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	150	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 60 x 1 = 60
FACW species 75 x 2 = 150
FAC species 15 x 3 = 45
FACU species 0 x 4 = 0
UPL species 0 x 5 = 0
Column Totals: 150 (A) 255 (B)
Prevalence Index = B/A = 1.700

Hydrophytic Vegetation Indicators:
☒ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-032 PEM**

Depth (inches)	Matrix		Redox Features					Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-16	10YR	2/1	80	10YR	3/6	20	C	M,PL	Silty Clay Loam	10% oxidized rhizospheres

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils ³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soil indicator is present.

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

Field Observations:

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

Wetland Hydrology Present? Yes ☒ No ☐

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

NA

Remarks:

The source of hydrology is surface runoff. Several primary and secondary hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 14-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-032 UPL
Investigator(s): MRK, KRS Section, Township, Range: S 25 T 3N R 15W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): convex
Slope: 1.0% / 0.6 ° Lat.: 40.1332 Long.: -82.75419 Datum: NAD83
Soil Map Unit Name: Pe : Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-032. Upland data was collected within a pasture.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Dactylis glomerata</u>	50	<input checked="" type="checkbox"/> 43.5%	FACU
2. <u>Phleum pratense</u>	30	<input checked="" type="checkbox"/> 26.1%	FACU
3. <u>Cirsium arvense</u>	15	<input type="checkbox"/> 13.0%	FACU
4. <u>Taraxacum officinale</u>	15	<input type="checkbox"/> 13.0%	FACU
5. <u>Lysimachia nummularia</u>	5	<input type="checkbox"/> 4.3%	FACW
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	115	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 5 x 2 = 10
FAC species 0 x 3 = 0
FACU species 110 x 4 = 440
UPL species 0 x 5 = 0
Column Totals: 115 (A) 450 (B)
Prevalence Index = B/A = 3.913

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≥ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Hydrophytic vegetation indicators are absent.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-032 UPL**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR	3/3	100				Silt Loam	

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

Hydric Soil Indicators:

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Hydric soil indicators are absent.

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

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

NA

Remarks:

No source of hydrology was observed. No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Franklin Sampling Date: 14-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-033 PEM
Investigator(s): MRK, KRS Section, Township, Range: S 1 T 2N R 16W
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): concave
Slope: 2.0% / 1.1 ° Lat.: 40.12324 Long.: -82.76209 Datum: NAD83
Soil Map Unit Name: Pm : Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: None

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PEM wetland is located in a depression and begins at a hillside spring seep. Water follows the depression and drains down the slope to stream S-MRK-030. The wetland boundary follows edge of depression.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Phalaris arundinacea</u>	75	<input checked="" type="checkbox"/> 60.0%	FACW
2. <u>Typha angustifolia</u>	25	<input checked="" type="checkbox"/> 20.0%	OBL
3. <u>Apocynum cannabinum</u>	25	<input checked="" type="checkbox"/> 20.0%	FAC
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	125	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 25 x 1 = 25
FACW species 75 x 2 = 150
FAC species 25 x 3 = 75
FACU species 0 x 4 = 0
UPL species 0 x 5 = 0
Column Totals: 125 (A) 250 (B)
Prevalence Index = B/A = 2.000

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicators are present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: **W-MRK-033 PEM**

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers Midwest Region - Version 2.0

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Franklin Sampling Date: 14-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-033 UPL
Investigator(s): MRK, KRS Section, Township, Range: S 1 T 2N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
Slope: 1.0% / 0.6 ° Lat.: 40.12321 Long.: -82.76193 Datum: NAD83
Soil Map Unit Name: Pe : Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-033. Upland data was collected within an agricultural field.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Zea mays</u>	70	<input checked="" type="checkbox"/> 56.0%	UPL
2. <u>Phalaris arundinacea</u>	20	<input type="checkbox"/> 16.0%	FACW
3. <u>Setaria pumila</u>	20	<input type="checkbox"/> 16.0%	FAC
4. <u>Solidago canadensis</u>	15	<input type="checkbox"/> 12.0%	FACU
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	125	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 20 x 2 = 40
FAC species 20 x 3 = 60
FACU species 15 x 4 = 60
UPL species 70 x 5 = 350
Column Totals: 125 (A) 510 (B)
Prevalence Index = B/A = 4.080

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Hydrophytic vegetation indicators are absent.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: **W-MRK-033 UPL**

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 18-Oct-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-037 PFO
Investigator(s): MRK, RBL Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.182489 Long.: -82.794527 Datum: NAD83
Soil Map Unit Name: PwA: Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located within a slight depression in a forested habitat. Depression is collecting surface runoff which dissipates into an upland section of the forest and agricultural field to the west.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Acer saccharinum</u>	<u>25</u>	<input checked="" type="checkbox"/> 50.0%	<u>FACW</u>	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A)
2. <u>Acer rubrum</u>	<u>25</u>	<input checked="" type="checkbox"/> 50.0%	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
	<u>50</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)				Prevalence Index worksheet:
1. <u>Lindera benzoin</u>	<u>25</u>	<input checked="" type="checkbox"/> 71.4%	<u>FACW</u>	Total % Cover of: Multiply by:
2. <u>Acer rubrum</u>	<u>10</u>	<input checked="" type="checkbox"/> 28.6%	<u>FAC</u>	OBL species <u>0</u> x 1 = <u>0</u>
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	FACW species <u>50</u> x 2 = <u>100</u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	FAC species <u>65</u> x 3 = <u>195</u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	FACU species <u>0</u> x 4 = <u>0</u>
	<u>35</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>
Herb Stratum (Plot size: <u>5'</u> radius)				Column Totals: <u>115</u> (A) <u>295</u> (B)
1. <u>Microstegium vimineum</u>	<u>20</u>	<input checked="" type="checkbox"/> 66.7%	<u>FAC</u>	Prevalence Index = B/A = <u>2.565</u>
2. <u>Toxicodendron radicans</u>	<u>10</u>	<input checked="" type="checkbox"/> 33.3%	<u>FAC</u>	
3. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
	<u>30</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30'</u> radius)				
1. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>	
	<u>0</u>	= Total Cover		

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicator present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: W-MRK-037 PFO

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers Midwest Region - Version 2.0

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 18-Oct-23
Applicant/Owner: AEP State: OH Sampling Point: W-MRK-037 UPL
Investigator(s): MRK, RBL Section, Township, Range: S T 3N R 16W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
Slope: 1.0% / 0.6 ° Lat.: 40.182037 Long.: -82.794549 Datum: NAD83
Soil Map Unit Name: PwA: Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: NA

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-037. Upland data was collected within a forested habitat. Not a wetland point as hydric soil and wetland hydrology criteria met.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	<u>30</u>	<input checked="" type="checkbox"/> 37.5%	<u>FAC</u>
2. <u>Carya ovata</u>	<u>25</u>	<input checked="" type="checkbox"/> 31.3%	<u>FACU</u>
3. <u>Quercus rubra</u>	<u>25</u>	<input checked="" type="checkbox"/> 31.3%	<u>FACU</u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>80</u>	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. <u>Lindera benzoin</u>	<u>40</u>	<input checked="" type="checkbox"/> 66.7%	<u>FACW</u>
2. <u>Carya ovata</u>	<u>10</u>	<input type="checkbox"/> 16.7%	<u>FACU</u>
3. <u>Acer rubrum</u>	<u>10</u>	<input type="checkbox"/> 16.7%	<u>FAC</u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>60</u>	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. <u>Toxicodendron radicans</u>	<u>10</u>	<input checked="" type="checkbox"/> 66.7%	<u>FAC</u>
2. <u>Microstegium vimineum</u>	<u>5</u>	<input checked="" type="checkbox"/> 33.3%	<u>FAC</u>
3. <u> </u>	<u> </u>	<input type="checkbox"/> 0.0%	<u> </u>
4. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
5. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
6. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
7. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
8. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
9. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
10. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>15</u>	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. <u>Parthenocissus quinquefolia</u>	<u>15</u>	<input checked="" type="checkbox"/> 100.0%	<u>FACU</u>
2. <u> </u>	<u>0</u>	<input type="checkbox"/> 0.0%	<u> </u>
	<u>15</u>	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 57.1% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 0 x 1 = 0
FACW species 40 x 2 = 80
FAC species 55 x 3 = 165
FACU species 75 x 4 = 300
UPL species 0 x 5 = 0
Column Totals: 170 (A) 545 (B)
Prevalence Index = B/A = 3.206

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☐ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation indicator present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-037 UPL**

[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)							
<div> <div> Field Observations: <div> Surface Water Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Water Table Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <div> Saturation Present? (includes capillary fringe) <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> </div> <div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> <div> Depth (inches): _____ </div> </div> </div> <div> Wetland Hydrology Present? <div> Yes <input type="radio"/> No <input checked="" type="radio"/> </div> </div> <tr> <td colspan="3"> Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA </td> </tr> <tr> <td colspan="3"> Remarks: No source of hydrology was observed. No wetland hydrology indicators present. </td> </tr>			Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA			Remarks: No source of hydrology was observed. No wetland hydrology indicators present.		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA								
Remarks: No source of hydrology was observed. No wetland hydrology indicators present.								

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 06-Dec-23
 Applicant/Owner: AEP State: OH Sampling Point: **W-MRK-038 PFO**
 Investigator(s): MRK, KRS Section, Township, Range: S T 3N R 16W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
 Slope: 1.0% / 0.6 ° Lat.: 40.174205 Long.: -82.772836 Datum: NAD83
 Soil Map Unit Name: BeA: Bennington silt loam, 0 to 2 percent slopes NWI classification: NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: This PFO wetland is located within a forested depression that is collecting surface runoff. Water draining from an agricultural field flows west into the forest and dissipates into another agricultural field to the west.		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:	
1. <u>Acer rubrum</u>	15	<input checked="" type="checkbox"/> 50.0%	FAC	Number of Dominant Species That are OBL, FACW, or FAC:	<u>5</u> (A)
2. <u>Quercus palustris</u>	15	<input checked="" type="checkbox"/> 50.0%	FACW	Total Number of Dominant Species Across All Strata:	<u>5</u> (B)
3. <u> </u>	0	<input type="checkbox"/> 0.0%		Percent of dominant Species That Are OBL, FACW, or FAC:	<u>100.0%</u> (A/B)
4. <u> </u>	0	<input type="checkbox"/> 0.0%			
5. <u> </u>	0	<input type="checkbox"/> 0.0%			
	30	= Total Cover			
				Prevalence Index worksheet:	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)				Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>80</u> x 2 = <u>160</u> FAC species <u>35</u> x 3 = <u>105</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>115</u> (A) <u>265</u> (B) Prevalence Index = B/A = <u>2.304</u>	
Herb Stratum (Plot size: <u>5'</u> radius)					
1. <u>Ulmus rubra</u>	20	<input checked="" type="checkbox"/> 100.0%	FAC		
2. <u> </u>	0	<input type="checkbox"/> 0.0%			
3. <u> </u>	0	<input type="checkbox"/> 0.0%			
4. <u> </u>	0	<input type="checkbox"/> 0.0%			
5. <u> </u>	0	<input type="checkbox"/> 0.0%			
	20	= Total Cover			
Woody Vine Stratum (Plot size: <u>30'</u> radius)					
1. <u>Carex intumescens</u>	50	<input checked="" type="checkbox"/> 76.9%	FACW		
2. <u>Phalaris arundinacea</u>	15	<input checked="" type="checkbox"/> 23.1%	FACW		
3. <u> </u>	0	<input type="checkbox"/> 0.0%			
4. <u> </u>	0	<input type="checkbox"/> 0.0%			
5. <u> </u>	0	<input type="checkbox"/> 0.0%			
6. <u> </u>	0	<input type="checkbox"/> 0.0%			
7. <u> </u>	0	<input type="checkbox"/> 0.0%			
8. <u> </u>	0	<input type="checkbox"/> 0.0%			
9. <u> </u>	0	<input type="checkbox"/> 0.0%			
10. <u> </u>	0	<input type="checkbox"/> 0.0%			
	65	= Total Cover			
				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Include photo numbers here or on a separate sheet.)
 Hydrophytic vegetation was observed within the Project area at the time of survey.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-038 PFO**

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input checked="" 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 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 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="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____		
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
NA		
Remarks:		
The source of hydrology is surface runoff.		

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 06-Dec-23
 Applicant/Owner: AEP State: OH Sampling Point: **W-MRK-038 UPL**
 Investigator(s): MRK, KRS Section, Township, Range: S T 3N R 16W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat
 Slope: 1.0% / 0.6 ° Lat.: 40.174071 Long.: -82.771921 Datum: NAD83
 Soil Map Unit Name: BeA: Bennington silt loam, 0 to 2 percent slopes NWI classification: NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: Upland data point for W-MRK-038. Upland data was collected within an agricultural field.		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	0
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
0 = Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Zea mays	100	<input checked="" type="checkbox"/> 100.0%	UPL
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
100 = Total Cover			
Woody Vine Stratum (Plot size: 30' radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
0 = Total Cover			

Dominance Test worksheet:
 Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>100</u>	x 5 = <u>500</u>
Column Totals: <u>100</u> (A)	<u>500</u> (B)

 Prevalence Index = B/A = 5.000

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **W-MRK-038 UPL**

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			
0-12	10YR	4/2	100					Silty Clay Loam	
12-16	10YR	5/3	80	10YR	5/8	20	C	M	Silty Clay Loam

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

Hydric Soil Indicators:			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"/> Dark Surface (S7)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Iron Manganese Masses (F12)			
<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 Muck Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)				
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)					

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

Restrictive Layer (if observed):		Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Type: _____	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)	
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<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="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
NA			
Remarks:			
No source of hydrology was observed.			

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp:11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: <u>Vassel Green Chapel Curley</u>	City/County: <u>Delaware County</u>	Sampling Date: <u>01/28/2025</u>
Applicant/Owner: <u>AEP</u>	State: <u>OH</u>	Sampling Point: <u>W-AGS-001 PEM</u>
Investigator(s): <u>AGS/TJK</u>	Section, Township, Range: <u>T4N R17W</u>	
Landform (hillside, terrace, etc.): <u>Depression/Floodplain</u>	Local relief (concave, convex, none): <u>Concave</u>	
Slope (%): <u>2</u>	Lat: <u>40.225168</u>	Long: <u>-82.854171</u> Datum: <u>NAD 83</u>
Soil Map Unit Name: <u>Cen1B1: Centerburg silt loam, 2 to 6 percent slopes</u>		NWI classification: <u>None</u>
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>X</u> No <u> </u> (If no, explain in Remarks.)		
Are Vegetation <u>X</u> , Soil <u>X</u> , or Hydrology <u> </u> significantly disturbed? Are "Normal Circumstances" present? Yes <u> </u> No <u>X</u>		
Are Vegetation <u> </u> , Soil <u> </u> , or Hydrology <u> </u> 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> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: W-AGS-001 is a PEM, abutting wetland situated in a transmission line ROW. This wetland receives hydrology from precipitation and S-MRK-021.. The vegetation and soil are disturbed from ROW-related activity.	

VEGETATION – Use scientific names of plants.

<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Tree Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>30'</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">=Total Cover</td> <td></td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Sapling/Shrub Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>15'</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">=Total Cover</td> <td></td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Herb Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>5'</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td><u>Microstegium vimineum</u></td><td style="text-align: center;">30</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td></tr> <tr><td>2.</td><td><u>Setaria pumila</u></td><td style="text-align: center;">20</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td></tr> <tr><td>3.</td><td><u>Dipsacus fullonum</u></td><td style="text-align: center;">10</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACU</td></tr> <tr><td>4.</td><td><u>Scirpus cyperinus</u></td><td style="text-align: center;">10</td><td style="text-align: center;">Yes</td><td style="text-align: center;">OBL</td></tr> <tr><td>5.</td><td><u>Epilobium ciliatum</u></td><td style="text-align: center;">10</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACW</td></tr> <tr><td>6.</td><td><u>Cinna arundinacea</u></td><td style="text-align: center;">10</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACW</td></tr> <tr><td>7.</td><td><u>Typha latifolia</u></td><td style="text-align: center;">5</td><td style="text-align: center;">No</td><td style="text-align: center;">OBL</td></tr> <tr><td>8.</td><td><u>Juncus effusus</u></td><td style="text-align: center;">5</td><td style="text-align: center;">No</td><td style="text-align: center;">OBL</td></tr> <tr><td>9.</td><td></td><td></td><td></td><td></td></tr> <tr><td>10.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">100</td> <td style="text-align: center;">=Total Cover</td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Woody Vine Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>30'</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">=Total Cover</td> <td></td> <td></td> </tr> </table>	Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	1.					2.					3.					4.					5.							=Total Cover			Sapling/Shrub Stratum	(Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	1.					2.					3.					4.					5.							=Total Cover			Herb Stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	1.	<u>Microstegium vimineum</u>	30	Yes	FAC	2.	<u>Setaria pumila</u>	20	Yes	FAC	3.	<u>Dipsacus fullonum</u>	10	Yes	FACU	4.	<u>Scirpus cyperinus</u>	10	Yes	OBL	5.	<u>Epilobium ciliatum</u>	10	Yes	FACW	6.	<u>Cinna arundinacea</u>	10	Yes	FACW	7.	<u>Typha latifolia</u>	5	No	OBL	8.	<u>Juncus effusus</u>	5	No	OBL	9.					10.							100	=Total Cover		Woody Vine Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	1.					2.							=Total Cover			<div style="border-bottom: 1px solid black; padding-bottom: 10px;"> Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B) </div> <div style="border-bottom: 1px solid black; padding-bottom: 10px;"> Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Total % Cover of:</th> <th style="text-align: left; border-bottom: 1px solid black;">Multiply by:</th> </tr> <tr><td>OBL species <u> </u></td><td>x 1 = <u> </u></td></tr> <tr><td>FACW species <u> </u></td><td>x 2 = <u> </u></td></tr> <tr><td>FAC species <u> </u></td><td>x 3 = <u> </u></td></tr> <tr><td>FACU species <u> </u></td><td>x 4 = <u> </u></td></tr> <tr><td>UPL species <u> </u></td><td>x 5 = <u> </u></td></tr> <tr> <td>Column Totals: <u> </u> (A)</td> <td><u> </u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u> </u></td> </tr> </table> </div> <div> Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0¹ <u> </u> 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. </div> <div style="border-top: 1px solid black; padding-top: 10px;"> Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> </div>	Total % Cover of:	Multiply by:	OBL species <u> </u>	x 1 = <u> </u>	FACW species <u> </u>	x 2 = <u> </u>	FAC species <u> </u>	x 3 = <u> </u>	FACU species <u> </u>	x 4 = <u> </u>	UPL species <u> </u>	x 5 = <u> </u>	Column Totals: <u> </u> (A)	<u> </u> (B)	Prevalence Index = B/A = <u> </u>	
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6.	<u>Cinna arundinacea</u>	10	Yes	FACW																																																																																																																																																																			
7.	<u>Typha latifolia</u>	5	No	OBL																																																																																																																																																																			
8.	<u>Juncus effusus</u>	5	No	OBL																																																																																																																																																																			
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Remarks: (Include photo numbers here or on a separate sheet.) Hydrophytic vegetation is present. The vegetation is disturbed from mowing.																																																																																																																																																																							

SOIL

Sampling Point: W-AGS-001 PEM

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		
0-5	10YR 3/2	95	7.5YR 5/4	5	C	PL/M	Loamy/Clayey	
5-20	10YR 3/2	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (Explain in Remarks)
<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"/> Dark Surface (S7)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if observed):	Hydric Soil Present?	Yes	No
Type: _____			
Depth (inches): _____			

Remarks:
Hydric soil is present. The soil is rocky and disturbance from ROW work.

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 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 checked="" 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:				Wetland Hydrology Present?	Yes	No
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)						

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

Remarks:
Wetland hydrology is present. The sources of hydrology are precipitation and stream inputs.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp:11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: <u>Vassel Green Chapel Curley</u>	City/County: <u>Delaware County</u>	Sampling Date: <u>01/28/2025</u>
Applicant/Owner: <u>AEP</u>	State: <u>OH</u>	Sampling Point: <u>W-AGS-001 UPL</u>
Investigator(s): <u>AGS/TJK</u>	Section, Township, Range: <u>T4N R17W</u>	
Landform (hillside, terrace, etc.): <u>Hillslope</u>	Local relief (concave, convex, none): <u>Convex</u>	
Slope (%): <u>3</u>	Lat: <u>40.224946</u>	Long: <u>-82.854140</u> Datum: <u>NAD 83</u>
Soil Map Unit Name: <u>Cen1B1: Centerburg silt loam, 2 to 6 percent slopes</u>		NWI classification: <u>None</u>
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>X</u> No <u> </u> (If no, explain in Remarks.)		
Are Vegetation <u>X</u> , Soil <u> </u> , or Hydrology <u> </u> significantly disturbed? Are "Normal Circumstances" present? Yes <u> </u> No <u>X</u>		
Are Vegetation <u> </u> , Soil <u> </u> , or Hydrology <u> </u> 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> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: W-AGS-001-UPL is an upland data point situated in a transmission line ROW. T. The vegetation appears disturbed from mowing.	

VEGETATION – Use scientific names of plants.

<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Tree Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>30'</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">=Total Cover</td> <td></td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Sapling/Shrub Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>15'</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">=Total Cover</td> <td></td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Herb Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>5'</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td><u>Tridens flavus</u></td><td style="text-align: center;">35</td><td style="text-align: center;">Yes</td><td style="text-align: center;">UPL</td></tr> <tr><td>2.</td><td><u>Dactylis glomerata</u></td><td style="text-align: center;">35</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACU</td></tr> <tr><td>3.</td><td><u>Solidago canadensis</u></td><td style="text-align: center;">10</td><td style="text-align: center;">No</td><td style="text-align: center;">FACU</td></tr> <tr><td>4.</td><td><u>Daucus carota</u></td><td style="text-align: center;">10</td><td style="text-align: center;">No</td><td style="text-align: center;">UPL</td></tr> <tr><td>5.</td><td><u>Dipsacus fullonum</u></td><td style="text-align: center;">10</td><td style="text-align: center;">No</td><td style="text-align: center;">FACU</td></tr> <tr><td>6.</td><td></td><td></td><td></td><td></td></tr> <tr><td>7.</td><td></td><td></td><td></td><td></td></tr> <tr><td>8.</td><td></td><td></td><td></td><td></td></tr> <tr><td>9.</td><td></td><td></td><td></td><td></td></tr> <tr><td>10.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">100</td> <td style="text-align: center;">=Total Cover</td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Woody Vine Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>30'</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;">=Total Cover</td> <td></td> <td></td> </tr> </table>	Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	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Indicator Status	1.					2.							=Total Cover			<div style="border-bottom: 1px solid black; padding-bottom: 5px;"> 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>0.0%</u> (A/B) </div> <div style="border-bottom: 1px solid black; padding-bottom: 5px;"> Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>55</u></td> <td>x 4 = <u>220</u></td> </tr> <tr> <td>UPL species <u>45</u></td> <td>x 5 = <u>225</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>445</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>4.45</u></td> </tr> </table> </div> <div style="padding-top: 5px;"> Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0¹ <u> </u> 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. </div> <div style="padding-top: 5px;"> Hydrophytic Vegetation Present? 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SOIL

Sampling Point: W-AGS-001 UPL

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		
0-20	10YR 3/3	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)	
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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 _____ No <u>X</u>
---	---

Remarks:
Hydric soil is not present.

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

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

Remarks:
Wetland hydrology is not present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Licking Sampling Date: 27-Jun-23
 Applicant/Owner: AEP State: OH Sampling Point: P-MRK-001
 Investigator(s): MRK, TW Section, Township, Range: S T 3N R 15W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
 Slope: 1.0% / 0.6 ° Lat.: 40.133218 Long.: -82.754982 Datum: NAD83
 Soil Map Unit Name: Pe; Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes NWI classification: PUBGx

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Open water pond is located within a residential lawn.	

VEGETATION - Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species? Rel. Strat. Cover	Indicator Status	Dominance Test worksheet:																
<u>Tree Stratum</u> (Plot size: <u>30'</u> radius)				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>100.0%</u> (A/B)																
1. _____	0	<input type="checkbox"/> 0.0%																		
2. _____	0	<input type="checkbox"/> 0.0%																		
3. _____	0	<input type="checkbox"/> 0.0%																		
4. _____	0	<input type="checkbox"/> 0.0%																		
5. _____	0	<input type="checkbox"/> 0.0%																		
	0	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'</u> radius)				Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>5</u></td> <td>x 1 = <u>5</u></td> </tr> <tr> <td>FACW species <u>20</u></td> <td>x 2 = <u>40</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>25</u></td> <td>(A) <u>45</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>1.800</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>5</u>	x 1 = <u>5</u>	FACW species <u>20</u>	x 2 = <u>40</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>25</u>	(A) <u>45</u> (B)	Prevalence Index = B/A = <u>1.800</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>5</u>	x 1 = <u>5</u>																			
FACW species <u>20</u>	x 2 = <u>40</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>25</u>	(A) <u>45</u> (B)																			
Prevalence Index = B/A = <u>1.800</u>																				
1. _____	0	<input type="checkbox"/> 0.0%																		
2. _____	0	<input type="checkbox"/> 0.0%																		
3. _____	0	<input type="checkbox"/> 0.0%																		
4. _____	0	<input type="checkbox"/> 0.0%																		
5. _____	0	<input type="checkbox"/> 0.0%																		
	0	= Total Cover																		
<u>Herb Stratum</u> (Plot size: <u>5'</u> radius)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Carex vulpinoidea</u>	20	<input checked="" type="checkbox"/> 80.0%	FACW																	
2. <u>Typha angustifolia</u>	5	<input checked="" type="checkbox"/> 20.0%	OBL																	
3. _____	0	<input type="checkbox"/> 0.0%																		
4. _____	0	<input type="checkbox"/> 0.0%																		
5. _____	0	<input type="checkbox"/> 0.0%																		
6. _____	0	<input type="checkbox"/> 0.0%																		
7. _____	0	<input type="checkbox"/> 0.0%																		
8. _____	0	<input type="checkbox"/> 0.0%																		
9. _____	0	<input type="checkbox"/> 0.0%																		
10. _____	0	<input type="checkbox"/> 0.0%																		
	25	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: <u>30'</u> radius)				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>																
1. _____	0	<input type="checkbox"/> 0.0%																		
2. _____	0	<input type="checkbox"/> 0.0%																		
	0	= Total Cover																		

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

Hydrophytic vegetation is limited to the pond edge only.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **Pond-MRK-001**

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input 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 checked="" 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)		
<div> <div>Field Observations:</div> <div> <div> <div>Surface Water Present?</div> <div>Yes <input checked="" type="radio"/> No <input type="radio"/></div> <div>Depth (inches): <u>72</u></div> </div> <div> <div>Water Table Present?</div> <div>Yes <input checked="" type="radio"/> No <input type="radio"/></div> <div>Depth (inches): <u>0</u></div> </div> <div> <div>Saturation Present? (includes capillary fringe)</div> <div>Yes <input checked="" type="radio"/> No <input type="radio"/></div> <div>Depth (inches): <u>0</u></div> </div> </div> <div> <div>Wetland Hydrology Present?</div> <div>Yes <input checked="" type="radio"/> No <input type="radio"/></div> </div> </div>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
NA			
Remarks:			
The source of hydrology is spring seeps and surface runoff.			

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Vassell-Green Chapel City/County: Delaware Sampling Date: 11-Sep-23
Applicant/Owner: AEP State: OH Sampling Point: P-MRK-002
Investigator(s): MRK, KRS Section, Township, Range: S T 4N R 17W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave
Slope: 1.0% / 0.6 ° Lat.: 40.22643 Long.: -82.85426 Datum: NAD83
Soil Map Unit Name: Cen1B1 : Centerburg silt loam, 2 to 6 percent slopes NWI classification: PUBGx

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: Open water pond located at the western edge of the current study area. Amphibians were observed using the pond.	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)			
1. <u>Salix nigra</u>	25	<input checked="" type="checkbox"/> 100.0%	OBL
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
	25	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u> radius)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
	0	= Total Cover	

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 25 x 1 = 25
FACW species 0 x 2 = 0
FAC species 0 x 3 = 0
FACU species 0 x 4 = 0
UPL species 0 x 5 = 0
Column Totals: 25 (A) 25 (B)
Prevalence Index = B/A = 1.000

Hydrophytic Vegetation Indicators:
☒ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is > 50%
☒ 3 - Prevalence Index is ≤ 3.0 ¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

Hydrophytic vegetation is limited to the pond edge.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Sampling Point: P-MRK-002

HYDROLOGY

Wetland Hydrology Indicators:	
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US Army Corps of Engineers

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

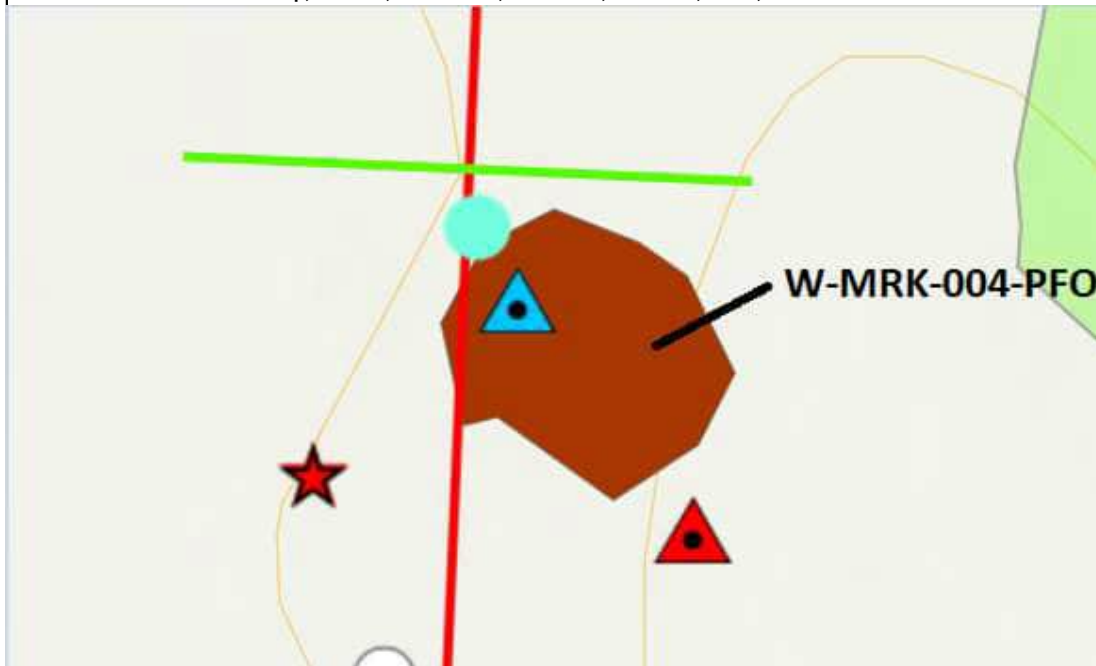
It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual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

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

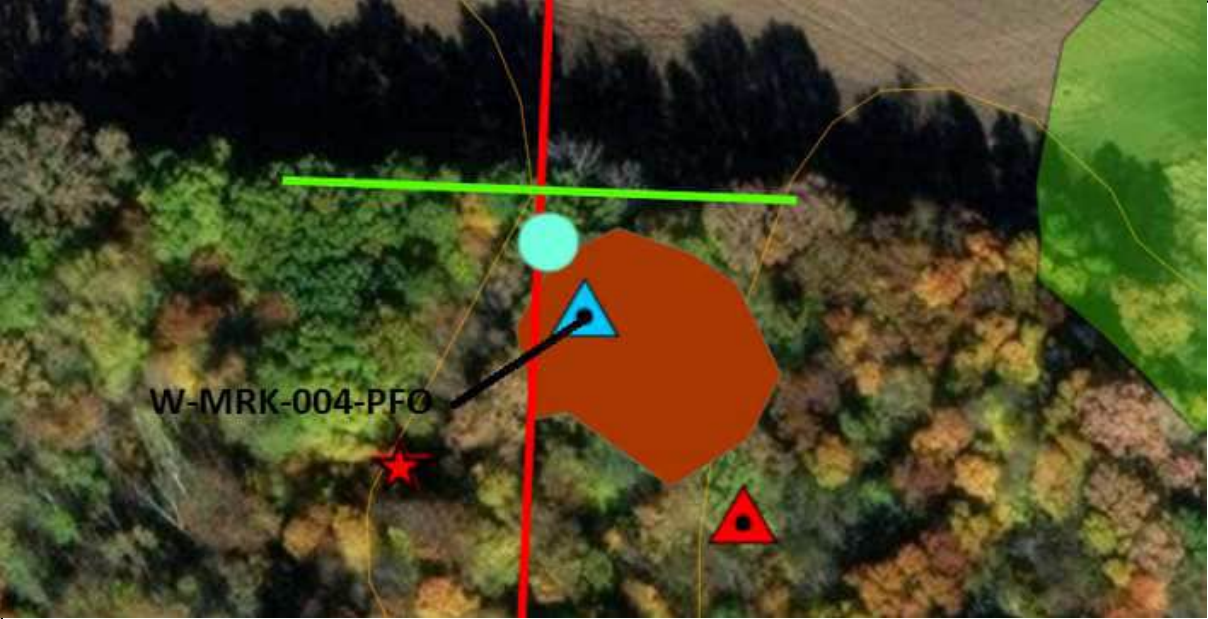
Background Information

Name:	MRK, AJH
Date:	6/15/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	mathhew.kline@aecom.com
Name of Wetland:	W-MRK-004
Vegetation Communit(ies):	PFO
HGM Class(es):	Depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.148161, -82.748641
USGS Quad Name:	Jersey
County:	Licking
Township:	Monroe
Section and Subsection:	3N 15W
Hydrologic Unit Code:	Duncan Run 050600011307
Site Visit:	6/15/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-004		
Wetland Size (delineated acres):	0.37	Wetland Size (Estimated total acres):	0.37
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes: PFO wetland is located within a forested depression. Depression is collecting surface runoff from the surrounding area and is seasonally inundated. Wetland boundary follows edge of depression.			
Final score:	35	Category:	Modified 2

Wetland ID:	W-MRK-004
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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	*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	*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	*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	*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	*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	*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	*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 aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	*NO Go to Question 8b

Wetland ID: W-MRK-004

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-004
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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.

Wetland ID:	W-MRK-004
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Site:	Vassell-Green Chapel	Rater(s):	MRK, AJH	Date:	6/15/2023
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2.0	2.0	Metric 1. Wetland Area (size).	Field ID: W-MRK-004 PFO																		
max 6 pts	subtotal	Select one size class and assign score. <table><tr><td><input type="checkbox"/></td><td>>50 acres (>20.2ha) (6 pts)</td></tr><tr><td><input type="checkbox"/></td><td>25 to <50 acres (10.1 to <20.2ha) (5 pts)</td></tr><tr><td><input type="checkbox"/></td><td>10 to <25 acres (4 to <10.1ha) (4 pts)</td></tr><tr><td><input type="checkbox"/></td><td>3 to <10 acres (1.2 to <4ha) (3 pts)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>0.3 to <3 acres (0.12 to <1.2ha) (2pts)</td></tr><tr><td><input type="checkbox"/></td><td>0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)</td></tr><tr><td><input type="checkbox"/></td><td><0.1 acres (0.04ha) (0 pts)</td></tr></table>	<input type="checkbox"/>	>50 acres (>20.2ha) (6 pts)	<input type="checkbox"/>	25 to <50 acres (10.1 to <20.2ha) (5 pts)	<input type="checkbox"/>	10 to <25 acres (4 to <10.1ha) (4 pts)	<input type="checkbox"/>	3 to <10 acres (1.2 to <4ha) (3 pts)	<input checked="" type="checkbox"/>	0.3 to <3 acres (0.12 to <1.2ha) (2pts)	<input type="checkbox"/>	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	<input type="checkbox"/>	<0.1 acres (0.04ha) (0 pts)	<table><tr><td>Delineated acres:</td><td>0.37</td></tr><tr><td>Total acres:</td><td>0.37</td></tr></table>	Delineated acres:	0.37	Total acres:	0.37
<input type="checkbox"/>	>50 acres (>20.2ha) (6 pts)																				
<input type="checkbox"/>	25 to <50 acres (10.1 to <20.2ha) (5 pts)																				
<input type="checkbox"/>	10 to <25 acres (4 to <10.1ha) (4 pts)																				
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<input type="checkbox"/>	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)																				
<input type="checkbox"/>	<0.1 acres (0.04ha) (0 pts)																				
Delineated acres:	0.37																				
Total acres:	0.37																				

6.0	8.0	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. <table><tr><td><input type="checkbox"/></td><td>WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)</td></tr><tr><td><input type="checkbox"/></td><td>MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)</td></tr><tr><td><input type="checkbox"/></td><td>VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)</td></tr></table> 2b. Intensity of surrounding land use. Select one or double check and average. <table><tr><td><input type="checkbox"/></td><td>VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>LOW. Old field (>10 years), shrubland, young second growth forest. (5)</td></tr><tr><td><input type="checkbox"/></td><td>MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)</td></tr><tr><td><input type="checkbox"/></td><td>HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)</td></tr></table>	<input type="checkbox"/>	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)	<input type="checkbox"/>	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)	<input checked="" type="checkbox"/>	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)	<input type="checkbox"/>	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)	<input type="checkbox"/>	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)	<input checked="" type="checkbox"/>	LOW. Old field (>10 years), shrubland, young second growth forest. (5)	<input type="checkbox"/>	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)	<input type="checkbox"/>	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
<input type="checkbox"/>	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)																	
<input type="checkbox"/>	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)																	
<input checked="" type="checkbox"/>	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)																	
<input type="checkbox"/>	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)																	
<input type="checkbox"/>	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)																	
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<input type="checkbox"/>	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)																	
<input type="checkbox"/>	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)																	

12.0	20.0	Metric 3. Hydrology.																																																												
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply. <table><tr><td><input type="checkbox"/></td><td>High pH groundwater (5)</td></tr><tr><td><input type="checkbox"/></td><td>Other groundwater (3)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Precipitation (1)</td></tr><tr><td><input type="checkbox"/></td><td>Seasonal/Intermittent surface water (3)</td></tr><tr><td><input type="checkbox"/></td><td>Perennial surface water (lake or stream) (5)</td></tr></table> 3c. Maximum water depth. Select one. <table><tr><td><input type="checkbox"/></td><td>>0.7 (27.6in) (3)</td></tr><tr><td><input type="checkbox"/></td><td>0.4 to 0.7m (15.7 to 27.6in) (2)</td></tr><tr><td><input checked="" type="checkbox"/></td><td><0.4m (<15.7in) (1)</td></tr></table> 3e. Modifications to natural hydrologic regime. Score one or double check and average. <table><tr><td><input type="checkbox"/></td><td>None or none apparent (12)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Recovered (7)</td></tr><tr><td><input type="checkbox"/></td><td>Recovering (3)</td></tr><tr><td><input type="checkbox"/></td><td>Recent or no recovery (1)</td></tr></table> 3b. Connectivity. Score all that apply. <table><tr><td><input type="checkbox"/></td><td>100 year floodplain (1)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Between stream/lake and other human use (1)</td></tr><tr><td><input type="checkbox"/></td><td>Part of wetland/upland (e.g. forest), complex (1)</td></tr><tr><td><input type="checkbox"/></td><td>Part of riparian or upland corridor (1)</td></tr></table> 3d. Duration inundation/saturation. Score one or dbl check. <table><tr><td><input type="checkbox"/></td><td>Semi- to permanently inundated/saturated (4)</td></tr><tr><td><input type="checkbox"/></td><td>Regularly inundated/saturated (3)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Seasonally inundated (2)</td></tr><tr><td><input type="checkbox"/></td><td>Seasonally saturated in upper 30cm (12in) (1)</td></tr></table> Check all disturbances observed <table><tr><td><input type="checkbox"/></td><td>ditch</td><td><input type="checkbox"/></td><td>point source (nonstormwater)</td></tr><tr><td><input type="checkbox"/></td><td>tile</td><td><input type="checkbox"/></td><td>filling/grading</td></tr><tr><td><input type="checkbox"/></td><td>dike</td><td><input type="checkbox"/></td><td>road bed/RR track</td></tr><tr><td><input type="checkbox"/></td><td>weir</td><td><input type="checkbox"/></td><td>dredging</td></tr><tr><td><input type="checkbox"/></td><td>stormwater input</td><td><input type="checkbox"/></td><td>Other:</td></tr></table>	<input type="checkbox"/>	High pH groundwater (5)	<input type="checkbox"/>	Other groundwater (3)	<input checked="" type="checkbox"/>	Precipitation (1)	<input type="checkbox"/>	Seasonal/Intermittent surface water (3)	<input type="checkbox"/>	Perennial surface water (lake or stream) (5)	<input type="checkbox"/>	>0.7 (27.6in) (3)	<input type="checkbox"/>	0.4 to 0.7m (15.7 to 27.6in) (2)	<input checked="" type="checkbox"/>	<0.4m (<15.7in) (1)	<input type="checkbox"/>	None or none apparent (12)	<input checked="" type="checkbox"/>	Recovered (7)	<input type="checkbox"/>	Recovering (3)	<input type="checkbox"/>	Recent or no recovery (1)	<input type="checkbox"/>	100 year floodplain (1)	<input checked="" type="checkbox"/>	Between stream/lake and other human use (1)	<input type="checkbox"/>	Part of wetland/upland (e.g. forest), complex (1)	<input type="checkbox"/>	Part of riparian or upland corridor (1)	<input type="checkbox"/>	Semi- to permanently inundated/saturated (4)	<input type="checkbox"/>	Regularly inundated/saturated (3)	<input checked="" type="checkbox"/>	Seasonally inundated (2)	<input type="checkbox"/>	Seasonally saturated in upper 30cm (12in) (1)	<input type="checkbox"/>	ditch	<input type="checkbox"/>	point source (nonstormwater)	<input type="checkbox"/>	tile	<input type="checkbox"/>	filling/grading	<input type="checkbox"/>	dike	<input type="checkbox"/>	road bed/RR track	<input type="checkbox"/>	weir	<input type="checkbox"/>	dredging	<input type="checkbox"/>	stormwater input	<input type="checkbox"/>	Other:
<input type="checkbox"/>	High pH groundwater (5)																																																													
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<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:																																																											

12.0	32.0	Metric 4. Habitat Alteration and Development.																																																						
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. <table><tr><td><input type="checkbox"/></td><td>None or none apparent (4)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Recovered (3)</td></tr><tr><td><input type="checkbox"/></td><td>Recovering (2)</td></tr><tr><td><input type="checkbox"/></td><td>Recent or no recovery (1)</td></tr></table> 4b. Habitat development. Select only one and assign score. <table><tr><td><input type="checkbox"/></td><td>Excellent (7)</td></tr><tr><td><input type="checkbox"/></td><td>Very good (6)</td></tr><tr><td><input type="checkbox"/></td><td>Good (5)</td></tr><tr><td><input type="checkbox"/></td><td>Moderately good (4)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Fair (3)</td></tr><tr><td><input type="checkbox"/></td><td>Poor to fair (2)</td></tr><tr><td><input type="checkbox"/></td><td>Poor (1)</td></tr></table> 4c. Habitat alteration. Score one or double check and average. <table><tr><td><input type="checkbox"/></td><td>None or none apparent (9)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Recovered (6)</td></tr><tr><td><input type="checkbox"/></td><td>Recovering (3)</td></tr><tr><td><input type="checkbox"/></td><td>Recent or no recovery (1)</td></tr></table> Check all disturbances observed <table><tr><td><input type="checkbox"/></td><td>mowing</td><td><input type="checkbox"/></td><td>shrub/sapling removal</td></tr><tr><td><input type="checkbox"/></td><td>grazing</td><td><input type="checkbox"/></td><td>herbaceous/aquatic bed removal</td></tr><tr><td><input type="checkbox"/></td><td>clearcutting</td><td><input checked="" type="checkbox"/></td><td>sedimentation</td></tr><tr><td><input checked="" type="checkbox"/></td><td>selective cutting</td><td><input type="checkbox"/></td><td>dredging</td></tr><tr><td><input type="checkbox"/></td><td>woody debris removal</td><td><input checked="" type="checkbox"/></td><td>farming</td></tr><tr><td><input type="checkbox"/></td><td>toxic pollutants</td><td><input type="checkbox"/></td><td>nutrient enrichment</td></tr></table>	<input type="checkbox"/>	None or none apparent (4)	<input checked="" type="checkbox"/>	Recovered (3)	<input type="checkbox"/>	Recovering (2)	<input type="checkbox"/>	Recent or no recovery (1)	<input type="checkbox"/>	Excellent (7)	<input type="checkbox"/>	Very good (6)	<input type="checkbox"/>	Good (5)	<input type="checkbox"/>	Moderately good (4)	<input checked="" type="checkbox"/>	Fair (3)	<input type="checkbox"/>	Poor to fair (2)	<input type="checkbox"/>	Poor (1)	<input type="checkbox"/>	None or none apparent (9)	<input checked="" type="checkbox"/>	Recovered (6)	<input type="checkbox"/>	Recovering (3)	<input type="checkbox"/>	Recent or no recovery (1)	<input type="checkbox"/>	mowing	<input type="checkbox"/>	shrub/sapling removal	<input type="checkbox"/>	grazing	<input type="checkbox"/>	herbaceous/aquatic bed removal	<input type="checkbox"/>	clearcutting	<input checked="" type="checkbox"/>	sedimentation	<input checked="" 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 type="checkbox"/>	nutrient enrichment
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<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/>	nutrient enrichment																																																					

32.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-004
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Site:	Vassell-Green Chapel	Rater(s):	MRK, AJH	Date:	6/15/2023
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32.0
subtotal this page

Field ID:
W-MRK-004 PFO

0.0	32.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

3.0	35.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- | | |
|--------------------------|-------------|
| <input type="checkbox"/> | Aquatic bed |
| <input type="checkbox"/> | Emergent |
| <input type="checkbox"/> | Shrub |
| 1 | Forest |
| <input type="checkbox"/> | Mudflats |
| <input type="checkbox"/> | Open water |
| <input type="checkbox"/> | Other |

6b. horizontal (plan view) Interspersions.

Select only one.

- | | |
|--------------------------|--------------------|
| <input type="checkbox"/> | High (5) |
| <input type="checkbox"/> | Moderately high(4) |
| <input type="checkbox"/> | Moderate (3) |
| <input type="checkbox"/> | Moderately low (2) |
| x | Low (1) |
| <input type="checkbox"/> | None (0) |

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

- | | |
|--------------------------|-----------------------------|
| <input type="checkbox"/> | Extensive >75% cover (-5) |
| <input type="checkbox"/> | Moderate 25-75% cover (-3) |
| x | Sparse 5-25% cover (-1) |
| <input type="checkbox"/> | Nearly absent <5% cover (0) |
| <input type="checkbox"/> | Absent (1) |

6d. Microtopography.

Score all present using 0 to 3 scale.

- | | |
|---|---------------------------------|
| 0 | Vegetated hummocks/tussucks |
| 1 | Coarse woody debris >15cm (6in) |
| 1 | Standing dead >25cm (10in) dbh |
| 0 | 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 1 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 2 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 3 vegetation and is of high quality |

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to

A predominance of native species, with nonnative spp high 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 |

35.0	TOTAL (Max 100 pts)
Modified 2	Category

Wetland ID:	W-MRK-004
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2		
	Metric 2. Buffers and surrounding land use	6		
	Metric 3. Hydrology	12		
	Metric 4. Habitat	12		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersions, microtopography	3		
	TOTAL SCORE	35		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-004

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	*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	*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	*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?	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 within 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	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	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	Category 1	*Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

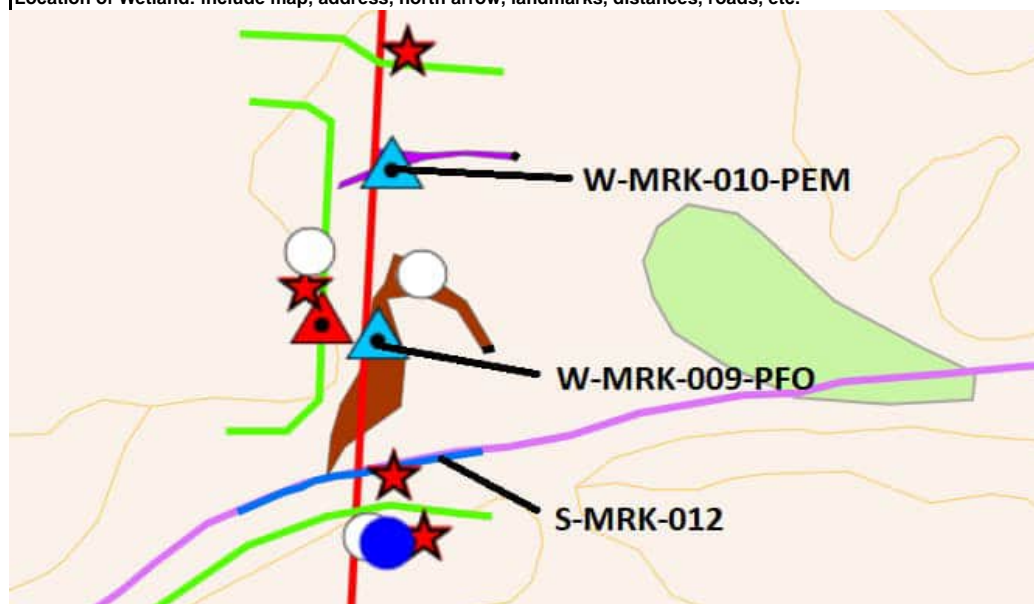
It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual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

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


Background Information

Name:	MRK, RBL
Date:	6/22/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	mathhew.kline@aecom.com
Name of Wetland:	W-MRK-009
Vegetation Communit(ies):	PFO
HGM Class(es):	Depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.189848, -82.79656
USGS Quad Name:	Jersey
County:	Delaware
Township:	Harlem
Section and Subsection:	T3N R16W
Hydrologic Unit Code:	Hoover Reservoir-Big Walnut Creek 050600011308
Site Visit:	6/22/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-009		
Wetland Size (delineated acres):	0.35	Wetland Size (Estimated total acres):	0.40
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes: This PFO wetland is located in a swale like depression within a forested area. Water drains to the depression from the surrounding flat landscape which is primarily agricultural. Wetland is influenced by surface runoff and seasonal inundation.			
Final score:	29	Category:	1

Wetland ID:	W-MRK-009
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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

Wetland ID: W-MRK-009

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-009

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-009
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicaratum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-009
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Site:	Vassell-Green Chapel	Rater(s):	MRK, RBL	Date:	6/22/2023
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2.0	2.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

Field ID:

W-MRK-009 PFO

Delineated acres:	0.35
Total acres:	0.40

6.0	8.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

12.0	20.0
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3c. Maximum water depth. Select one.

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

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

8.0	28.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input checked="" type="checkbox"/> sedimentation |
| <input checked="" 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 type="checkbox"/> nutrient enrichment |

28.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-009
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Site:	Vassell-Green Chapel	Rater(s):	MRK, RBL	Date:	6/22/2023
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Field ID:

W-MRK-009 PFO

28.0

subtotal this page

0.0

28.0

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1.0

29.0

max 20pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 0 Vegetated hummocks/tussucks
- ☒ 1 Coarse woody debris >15cm (6in)
- ☒ 1 Standing dead >25cm (10in) dbh
- ☒ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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

29.0 TOTAL (Max 100 pts)

1 Category

Wetland ID:	W-MRK-009
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2		
	Metric 2. Buffers and surrounding land use	6		
	Metric 3. Hydrology	12		
	Metric 4. Habitat	8		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersed, microtopography	1		
	TOTAL SCORE	29		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-009

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	*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	*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	*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?	*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	*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	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	*Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

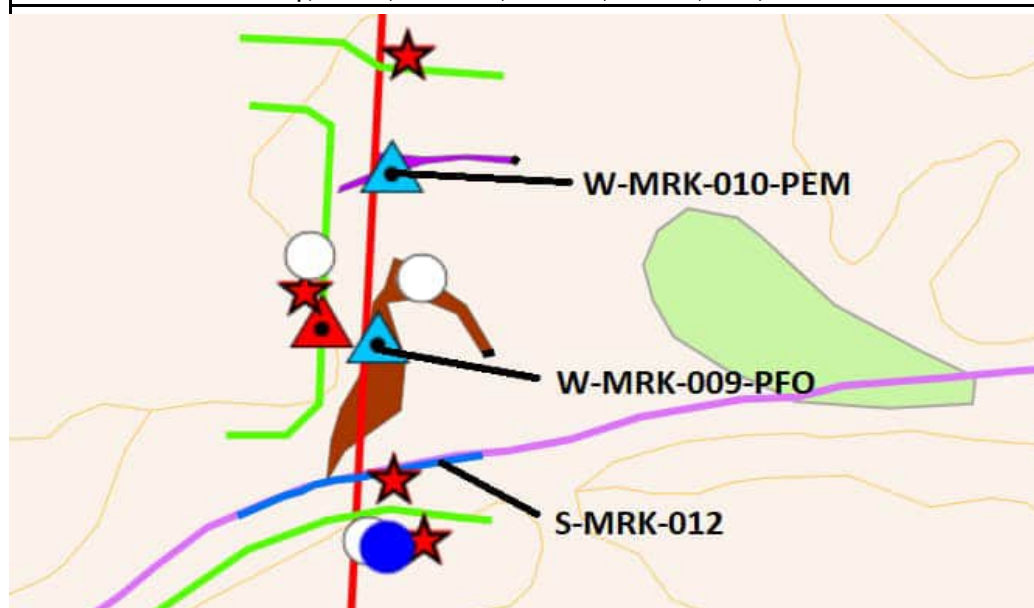
It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual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

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


Background Information

Name:	MRK, RBL
Date:	6/22/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	mathhew.kline@aecom.com
Name of Wetland:	W-MRK-010
Vegetation Communit(ies):	PEM
HGM Class(es):	Depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.1904709, -82.7964999
USGS Quad Name:	Jersey
County:	Delaware
Township:	Harlem
Section and Subsection:	T3N R16W
Hydrologic Unit Code:	Hoover Reservoir-Big Walnut Creek 050600011308
Site Visit:	6/22/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-010		
Wetland Size (delineated acres):	0.07	Wetland Size (Estimated total acres):	1.00
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes: This PEM wetland is located in a depression on a former forest trail. Depression extends slightly beyond the trail which is collecting surface runoff from the surrounding area. Wetland extends beyond the current study area.			
Final score:	21	Category:	1

Wetland ID:	W-MRK-010
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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

Wetland ID: W-MRK-010

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-010

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-010
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-010
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Site:	Vassell-Green Chapel	Rater(s):	MRK, RBL	Date:	6/22/2023
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2.0	2.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

Field ID:

W-MRK-010 PEM

Delineated acres:	0.07
Total acres:	1.00

6.0	8.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

7.0	15.0
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3c. Maximum water depth. Select one.

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

- ☐ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input
- ☐ point source (nonstormwater)
- ☒ filling/grading
- ☐ road bed/RR track
- ☐ dredging
- ☐ Other:

8.0	23.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

- ☐ mowing
- ☐ grazing
- ☐ clearcutting
- ☒ selective cutting
- ☐ woody debris removal
- ☐ toxic pollutants
- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☒ sedimentation
- ☐ dredging
- ☒ farming
- ☐ nutrient enrichment

23.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-010
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Site:	Vassell-Green Chapel	Rater(s):	MRK, RBL	Date:	6/22/2023
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Field ID:

W-MRK-010 PEM

23.0

subtotal this page

0.0

23.0

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-2.0

21.0

max 20pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 0 Vegetated hummocks/tussucks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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

21.0 TOTAL (Max 100 pts)

1 Category

Wetland ID:	W-MRK-010
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2		
	Metric 2. Buffers and surrounding land use	6		
	Metric 3. Hydrology	7		
	Metric 4. Habitat	8		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersed, microtopography	-2		
	TOTAL SCORE	21		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-010

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	*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	*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	*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?	*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	*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	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	*Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

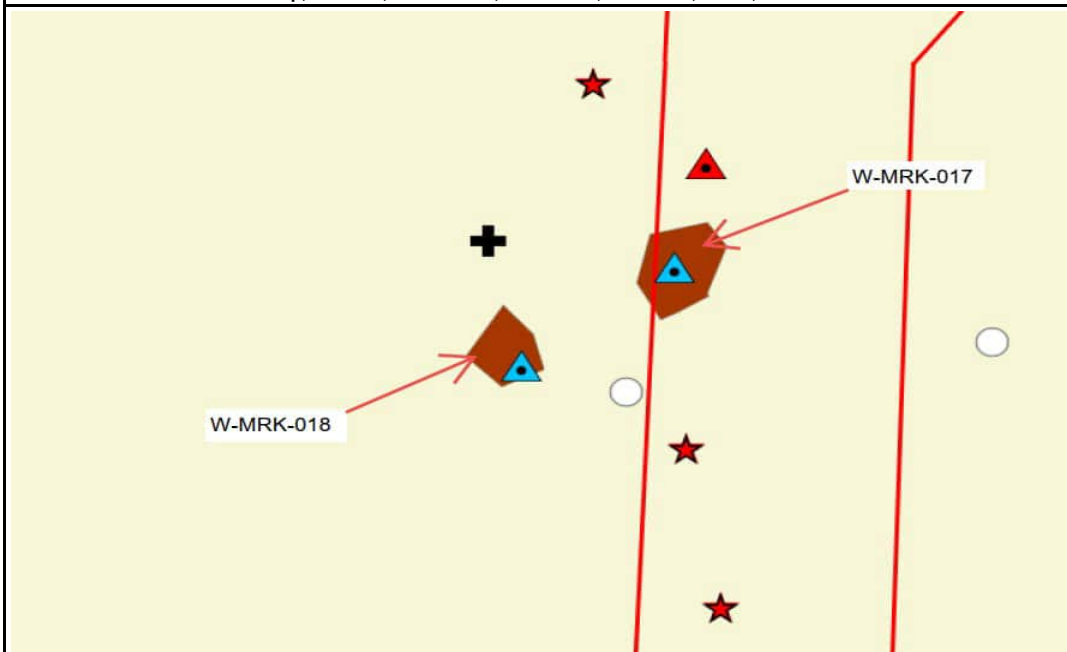
It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual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

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

Background Information

Name:	MRK, TW
Date:	6/27/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-017
Vegetation Communit(ies):	PFO
HGM Class(es):	Depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.140428, -82.749103
USGS Quad Name:	Johnstown
County:	Licking
Township:	3N
Section and Subsection:	15W
Hydrologic Unit Code:	HUC12- 050600011307 Duncan Run
Site Visit:	6/27/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-017		
Wetland Size (delineated acres):	0.15	Wetland Size (Estimated total acres):	0.15
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes:			
This PFO wetland is located within a forested depression that is collecting surface runoff. Wetland is seasonally inundated with water based on water stained leaves and debris drift deposits.			
Final score:	35	Category:	Modified 2

Wetland ID:	W-MRK-017
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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

Wetland ID: W-MRK-017

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-017

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>*NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-017
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-017
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Site:	AEP Vassell-Green Chapel	Rater(s):	MRK, TW	Date:	6/27/2023
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1.0	1.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

<input type="checkbox"/>	>50 acres (>20.2ha) (6 pts)
<input type="checkbox"/>	25 to <50 acres (10.1 to <20.2ha) (5 pts)
<input type="checkbox"/>	10 to <25 acres (4 to <10.1ha) (4 pts)
<input type="checkbox"/>	3 to <10 acres (1.2 to <4ha) (3 pts)
<input type="checkbox"/>	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
<input checked="" type="checkbox"/>	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
<input type="checkbox"/>	<0.1 acres (0.04ha) (0 pts)

Field ID:

W-MRK-017 PFO

Delineated acres:	0.15
Total acres:	0.15

6.0	7.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

<input type="checkbox"/>	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
<input type="checkbox"/>	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
<input checked="" type="checkbox"/>	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
<input type="checkbox"/>	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

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

<input type="checkbox"/>	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
<input checked="" type="checkbox"/>	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
<input type="checkbox"/>	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
<input type="checkbox"/>	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

12.0	19.0
max 30 pts.	subtotal

Metric 3. Hydrology.

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

<input type="checkbox"/>	High pH groundwater (5)
<input type="checkbox"/>	Other groundwater (3)
<input checked="" type="checkbox"/>	Precipitation (1)
<input type="checkbox"/>	Seasonal/Intermittent surface water (3)
<input type="checkbox"/>	Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select one.

<input type="checkbox"/>	>0.7 (27.6in) (3)
<input type="checkbox"/>	0.4 to 0.7m (15.7 to 27.6in) (2)
<input checked="" type="checkbox"/>	<0.4m (<15.7in) (1)

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

<input type="checkbox"/>	None or none apparent (12)
<input checked="" type="checkbox"/>	Recovered (7)
<input type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

3b. Connectivity. Score all that apply.

<input type="checkbox"/>	100 year floodplain (1)
<input type="checkbox"/>	Between stream/lake and other human use (1)
<input checked="" type="checkbox"/>	Part of wetland/upland (e.g. forest), complex (1)
<input type="checkbox"/>	Part of riparian or upland corridor (1)

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

<input type="checkbox"/>	Semi- to permanently inundated/saturated (4)
<input type="checkbox"/>	Regularly inundated/saturated (3)
<input checked="" type="checkbox"/>	Seasonally inundated (2)
<input type="checkbox"/>	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:

12.0	31.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

<input type="checkbox"/>	None or none apparent (4)
<input checked="" type="checkbox"/>	Recovered (3)
<input type="checkbox"/>	Recovering (2)
<input type="checkbox"/>	Recent or no recovery (1)

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

<input type="checkbox"/>	Excellent (7)
<input type="checkbox"/>	Very good (6)
<input type="checkbox"/>	Good (5)
<input type="checkbox"/>	Moderately good (4)
<input checked="" type="checkbox"/>	Fair (3)
<input type="checkbox"/>	Poor to fair (2)
<input type="checkbox"/>	Poor (1)

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

<input type="checkbox"/>	None or none apparent (9)
<input checked="" type="checkbox"/>	Recovered (6)
<input type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

Check all disturbances observed

<input type="checkbox"/>	mowing	<input type="checkbox"/>	shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/>	herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input checked="" type="checkbox"/>	sedimentation
<input checked="" 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 type="checkbox"/>	nutrient enrichment

31.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-017
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Site:	AEP Vassell-Green Chapel	Rater(s):	MRK, TW	Date:	6/27/2023
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Field ID:

W-MRK-017 PFO

31.0

subtotal this page

0.0

31.0

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

4.0

35.0

max 20pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

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)
- ☒ x Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks
- ☐ 1 Coarse woody debris >15cm (6in)
- ☐ 1 Standing dead >25cm (10in) dbh
- ☐ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

- Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
- Native spp are dominant component of the vegetation, mod 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 to
- A predominance of native species, with nonnative spp high 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

35.0 TOTAL (Max 100 pts)

Modified 2 Category

Wetland ID:	W-MRK-017
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1		
	Metric 2. Buffers and surrounding land use	6		
	Metric 3. Hydrology	12		
	Metric 4. Habitat	12		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersions, microtopography	4		
	TOTAL SCORE	35		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-017

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	*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	*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	*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?	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	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	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	Category 1	*Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

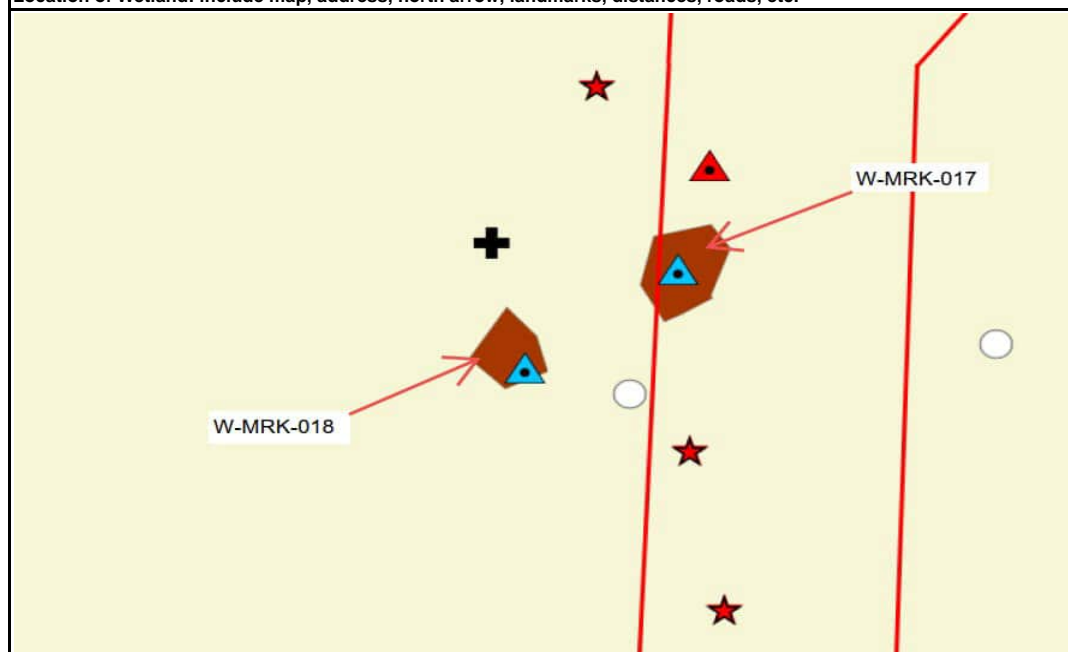
It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual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

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

Background Information

Name:	MRK, TW
Date:	6/27/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-018
Vegetation Communit(ies):	PFO
HGM Class(es):	Depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.140132, -82.749653
USGS Quad Name:	Johnstown
County:	Licking
Township:	3N
Section and Subsection:	15W
Hydrologic Unit Code:	HUC12- 050600011307 Duncan Run
Site Visit:	6/27/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-018		
Wetland Size (delineated acres):	0.09	Wetland Size (Estimated total acres):	0.09
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes:			
This PFO wetland is located within a forested depression that is collecting surface runoff. Wetland is seasonally inundated with water based on water stained leaves and debris drift deposits.			
Final score:	27	Category:	1

Wetland ID:	W-MRK-018
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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

Wetland ID: W-MRK-018

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-018

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>*NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-018
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-018
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Site:	AEP Vassell-Green Chapel	Rater(s):	MRK, TW	Date:	6/27/2023
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0.0	0.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

Field ID:

W-MRK-018 PFO

Delineated acres:	0.09
Total acres:	0.09

6.0	6.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, 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)

11.0	17.0
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3c. Maximum water depth. Select one.

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input 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: |

8.0	25.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input checked="" type="checkbox"/> sedimentation |
| <input checked="" 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 type="checkbox"/> nutrient enrichment |

25.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-018
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Site:	AEP Vassell-Green Chapel	Rater(s):	MRK, TW	Date:	6/27/2023
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Field ID:

W-MRK-018 PFO

25.0

subtotal this page

0.0

25.0

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

2.0

27.0

max 20pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

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)
- ☒ x Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks
- ☐ 1 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

- Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
- Native spp are dominant component of the vegetation, mod 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 to
- A predominance of native species, with nonnative spp high 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

27.0 TOTAL (Max 100 pts)

1 Category

Wetland ID:	W-MRK-018
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0		
	Metric 2. Buffers and surrounding land use	6		
	Metric 3. Hydrology	11		
	Metric 4. Habitat	8		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersions, microtopography	2		
	TOTAL SCORE	27		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-018

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	*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	*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	*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?	*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	*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	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	*Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

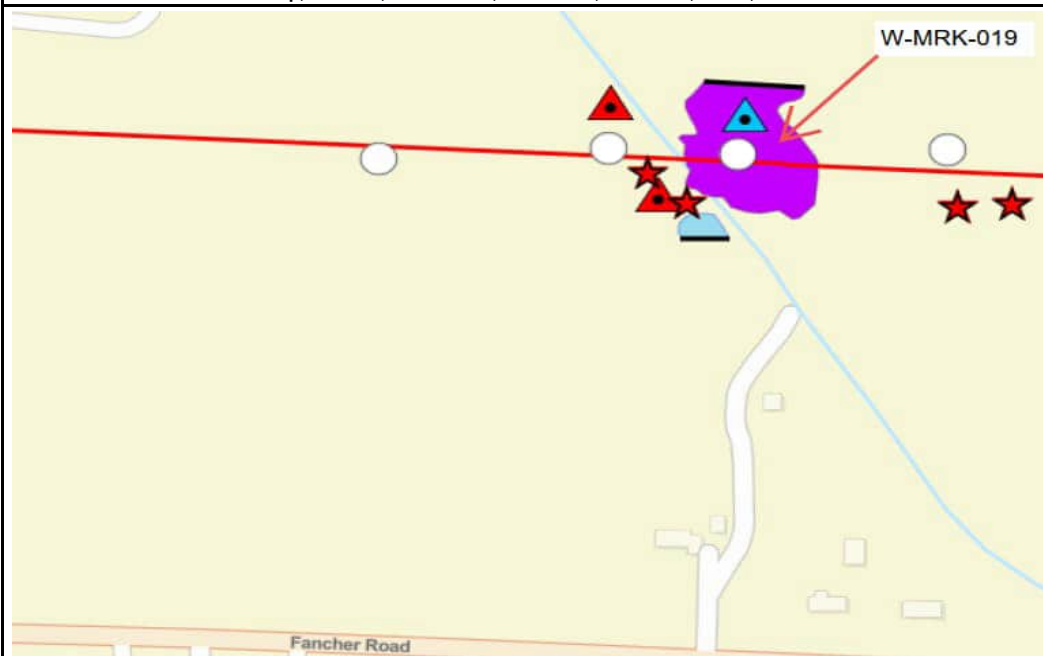
It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual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

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


Background Information

Name:	MRK, TW
Date:	6/27/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-019
Vegetation Communit(ies):	PEM
HGM Class(es):	Depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.133782, -82.754779
USGS Quad Name:	Sunbury
County:	Licking
Township:	3N
Section and Subsection:	15W
Hydrologic Unit Code:	HUC12- 050600011307 Duncan Run
Site Visit:	6/27/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-019		
Wetland Size (delineated acres):	1.16	Wetland Size (Estimated total acres):	1.70
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes:			
<p>This PEM wetland is located in a depression within a fallow field. Depression is collecting surface runoff which drains and dissipates into the surrounding agricultural fields. Wetland continues outside of the current study area.</p>			
Final score:	18	Category:	1

Wetland ID:	W-MRK-019
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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

Wetland ID: W-MRK-019

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-019

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>*NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-019
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-019
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Site:	AEP Vassell-Green Chapel	Rater(s):	MRK, TW	Date:	6/27/2023
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2.0	2.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

<input type="checkbox"/>	>50 acres (>20.2ha) (6 pts)
<input type="checkbox"/>	25 to <50 acres (10.1 to <20.2ha) (5 pts)
<input type="checkbox"/>	10 to <25 acres (4 to <10.1ha) (4 pts)
<input type="checkbox"/>	3 to <10 acres (1.2 to <4ha) (3 pts)
<input checked="" type="checkbox"/>	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
<input type="checkbox"/>	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
<input type="checkbox"/>	<0.1 acres (0.04ha) (0 pts)

Field ID:

W-MRK-019 PEM

Delineated acres:	1.16
Total acres:	1.70

2.0	4.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

<input type="checkbox"/>	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
<input type="checkbox"/>	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
<input checked="" type="checkbox"/>	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
<input type="checkbox"/>	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

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

<input type="checkbox"/>	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
<input type="checkbox"/>	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
<input type="checkbox"/>	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
<input checked="" type="checkbox"/>	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7.0	11.0
max 30 pts.	subtotal

Metric 3. Hydrology.

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

<input type="checkbox"/>	High pH groundwater (5)
<input type="checkbox"/>	Other groundwater (3)
<input checked="" type="checkbox"/>	Precipitation (1)
<input type="checkbox"/>	Seasonal/Intermittent surface water (3)
<input type="checkbox"/>	Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select one.

<input type="checkbox"/>	>0.7 (27.6in) (3)
<input type="checkbox"/>	0.4 to 0.7m (15.7 to 27.6in) (2)
<input checked="" type="checkbox"/>	<0.4m (<15.7in) (1)

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

<input type="checkbox"/>	None or none apparent (12)
<input type="checkbox"/>	Recovered (7)
<input checked="" type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

3b. Connectivity. Score all that apply.

<input type="checkbox"/>	100 year floodplain (1)
<input type="checkbox"/>	Between stream/lake and other human use (1)
<input checked="" type="checkbox"/>	Part of wetland/upland (e.g. forest), complex (1)
<input type="checkbox"/>	Part of riparian or upland corridor (1)

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

<input type="checkbox"/>	Semi- to permanently inundated/saturated (4)
<input type="checkbox"/>	Regularly inundated/saturated (3)
<input type="checkbox"/>	Seasonally inundated (2)
<input checked="" type="checkbox"/>	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 checked="" 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:

8.0	19.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

<input type="checkbox"/>	None or none apparent (4)
<input checked="" type="checkbox"/>	Recovered (3)
<input type="checkbox"/>	Recovering (2)
<input type="checkbox"/>	Recent or no recovery (1)

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

<input type="checkbox"/>	Excellent (7)
<input type="checkbox"/>	Very good (6)
<input type="checkbox"/>	Good (5)
<input type="checkbox"/>	Moderately good (4)
<input type="checkbox"/>	Fair (3)
<input checked="" type="checkbox"/>	Poor to fair (2)
<input type="checkbox"/>	Poor (1)

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

<input type="checkbox"/>	None or none apparent (9)
<input type="checkbox"/>	Recovered (6)
<input checked="" type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

Check all disturbances observed

<input type="checkbox"/>	mowing	<input type="checkbox"/>	shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/>	herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input checked="" type="checkbox"/>	sedimentation
<input checked="" 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 type="checkbox"/>	nutrient enrichment

19.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-019
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Site:	AEP Vassell-Green Chapel	Rater(s):	MRK, TW	Date:	6/27/2023
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Field ID:

W-MRK-019 PEM

19.0

subtotal this page

0.0

19.0

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-1.0

18.0

max 20pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 0 Vegetated hummocks/tussucks
- ☒ 0 Coarse woody debris >15cm (6in)
- ☒ 0 Standing dead >25cm (10in) dbh
- ☒ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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

18.0 TOTAL (Max 100 pts)

1 Category

Wetland ID:	W-MRK-019
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2		
	Metric 2. Buffers and surrounding land use	2		
	Metric 3. Hydrology	7		
	Metric 4. Habitat	8		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersions, microtopography	-1		
	TOTAL SCORE	18		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-019

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	*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	*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	*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?	*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	*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	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	*Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

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

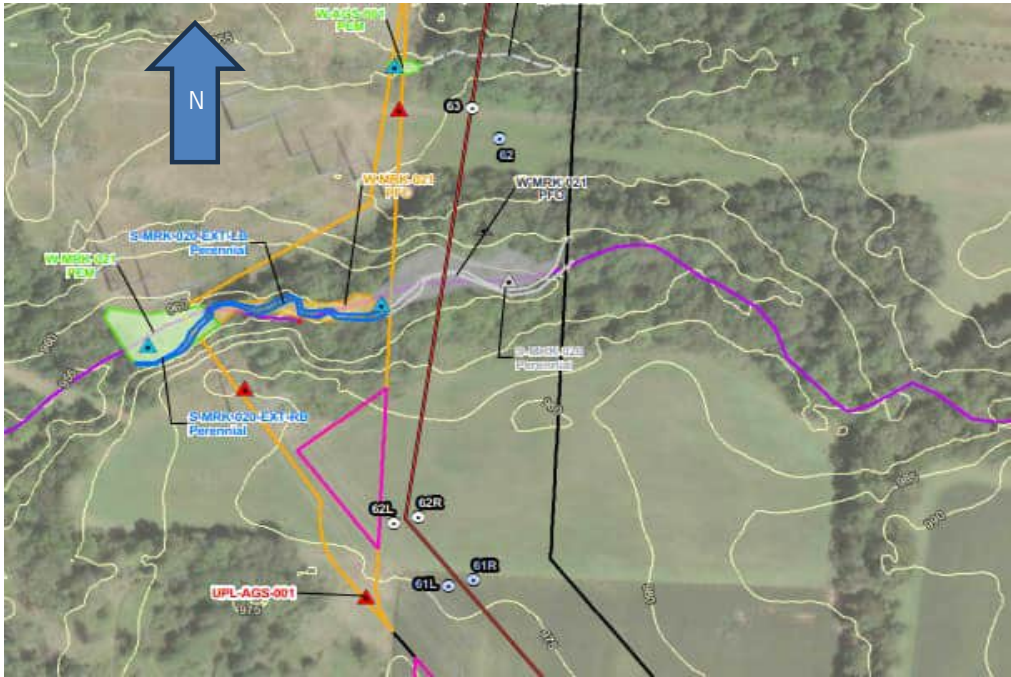
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at:
<http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

Background Information

Name:	AGS, TJK
Date:	1/29/2025
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	412-523-2423
e-mail address:	austin.sige@aecom.com
Name of Wetland:	W-MRK-021
Vegetation Communit(ies):	PEM/PFO
HGM Class(es):	Depressional/Riverine
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	



Lat/Long or UTM Coordinate:	40.223720, -82.855695 40.223935, -82.854241
USGS Quad Name:	Sunbury
County:	Delaware
Township:	T4N
Section and Subsection:	N/A
Hydrologic Unit Code:	HUC12 050600011306 Prairie Run-Big Walnut Creek
Site Visit:	1/29/2025
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-021		
Wetland Size (delineated acres):	4.01	Wetland Size (Estimated total acres):	4.20
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes:			
<p>W-MRK-021 is a PEM, abutting wetland that is located along the riparian zone of S-MRK-020. The sources of hydrology are precipitation and stream flooding. The vegetation is dominated by <i>Phalaris arundinacea</i> and is disturbed from mowing.</p> <p>W-MRK-021 is a PFO, abutting wetland that is located along the riparian zone of S-MRK-020. The sources of hydrology are precipitation and stream flooding. The wetland is within a conservation easement, therefore, there is little to no disturbance.</p>			
Final score:	42	Category:	Modified 2

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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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

Wetland ID: W-MRK-021

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-021

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p># 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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p># 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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-021
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicaratum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-021
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Site:	Vassel Green Chapel Curley	Rater(s):	AGS, TJK	Date:	1/29/2025
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3.0	3.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

Field ID:

W-MRK-021 PEM/PFO

Delineated acres:	4.01
Total acres:	4.20

5.0	8.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☒ LOW. Old field (>10 years), shrubland, 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)

17.0	25.0
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3c. Maximum water depth. Select one.

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

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

11.0	36.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

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

36.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID: W-MRK-021

Site: Vassel Green Chapel Curley Rater(s): AGS, TJK Date: 1/29/2025

36.0
subtotal this page

Field ID:
W-MRK-021 PEM/PFO

0.0 36.0
max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

6.0 42.0
max 20pts. subtotal

Metric 6. Plant communities, interspersed, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersion.

Select only one.

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

6c. Coverage of invasive plants. Refer

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.

- ☐ 0 Vegetated hummocks/tussocks
☒ 1 Coarse woody debris >15cm (6in)
☒ 1 Standing dead >25cm (10in) dbh
☐ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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

42.0 TOTAL (Max 100 pts)
Modified 2 Category

Wetland ID:	W-MRK-021
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	3		
	Metric 2. Buffers and surrounding land use	5		
	Metric 3. Hydrology	17		
	Metric 4. Habitat	11		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersion, microtopography	6		
	TOTAL SCORE	42		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-021

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	*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	*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	*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?	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	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	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	Category 1	*Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	MRK, KRS
Date:	9/11/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-023
Vegetation Communit(ies):	PEM
HGM Class(es):	DEPRESSION

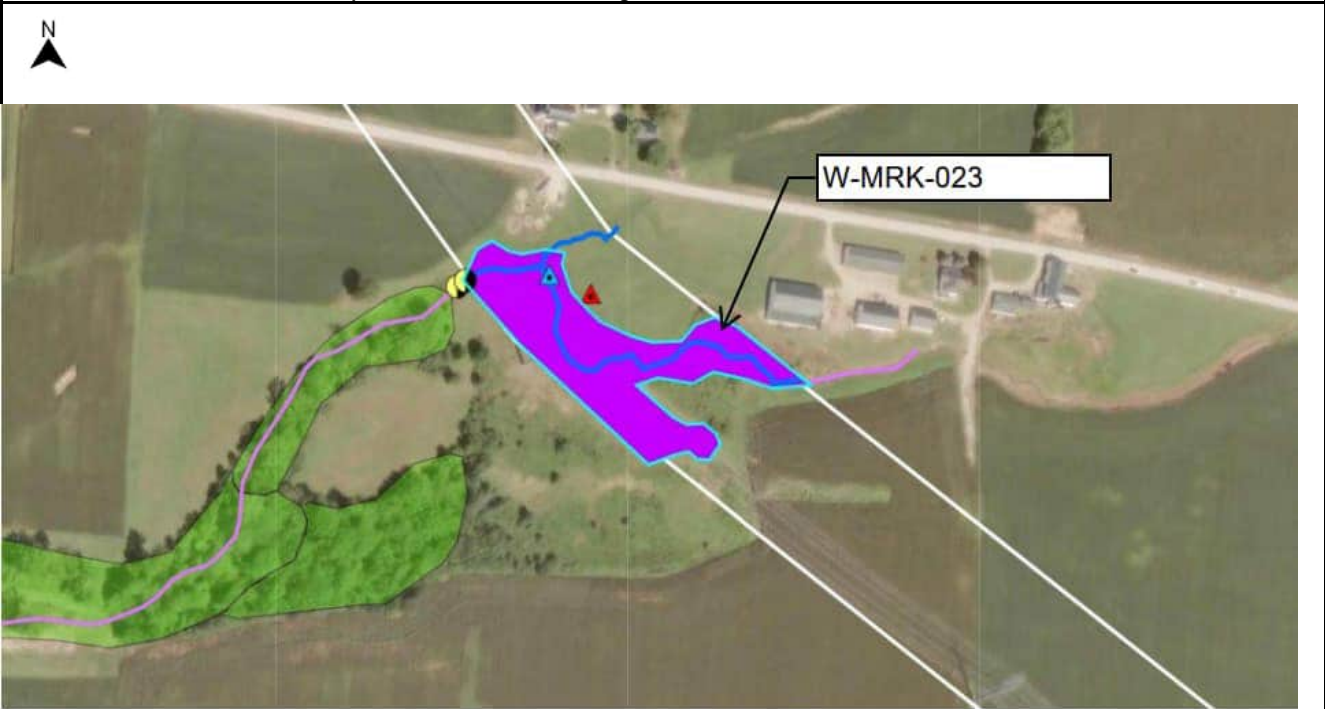
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.21723, -82.84852
USGS Quad Name:	Sunbury
County:	Delaware
Township:	Trenton
Section and Subsection:	T4N R16W
Hydrologic Unit Code:	050600011306 - Prairie Run-Big Walnut Creek
Site Visit:	9/11/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-023		
Wetland Size (delineated acres):	2.70	Wetland Size (Estimated total acres):	15.00

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

This PEM wetland is located within a hillside depression that is collecting surface runoff and flow from an intermittent watercourse that loses its banks at certain areas of the wetland. The wetland boundary follows edge of depression.

Final score:	23	Category:	1
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	
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.		X

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

Wetland ID: W-MRK-023

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-023

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-023
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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.

Wetland ID:	W-MRK-023
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/11/2023
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4.0	4.0	Metric 1. Wetland Area (size).	Field ID:
max 6 pts	subtotal	Select one size class and assign score.	W-MRK-023 PEM
		<input type="checkbox"/> >50 acres (>20.2ha) (6 pts)	
		<input type="checkbox"/> 25 to <50 acres (10.1 to <20.2ha) (5 pts)	
		<input checked="" type="checkbox"/> 10 to <25 acres (4 to <10.1ha) (4 pts)	
		<input type="checkbox"/> 3 to <10 acres (1.2 to <4ha) (3 pts)	
		<input type="checkbox"/> 0.3 to <3 acres (0.12 to <1.2ha) (2pts)	
		<input type="checkbox"/> 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	
		<input type="checkbox"/> <0.1 acres (0.04ha) (0 pts)	
			Delineated acres: 2.70
			Total acres: 15.00

2.0	6.0	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.
		<input type="checkbox"/> WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
		<input type="checkbox"/> MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
		<input checked="" type="checkbox"/> NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
		<input type="checkbox"/> VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
		2b. Intensity of surrounding land use. Select one or double check and average.
		<input type="checkbox"/> VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
		<input type="checkbox"/> LOW. Old field (>10 years), shrubland, young second growth forest. (5)
		<input type="checkbox"/> MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
		<input checked="" type="checkbox"/> HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

10.0	16.0	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply.
		<input type="checkbox"/> High pH groundwater (5)
		<input type="checkbox"/> Other groundwater (3)
		<input checked="" type="checkbox"/> Precipitation (1)
		<input checked="" type="checkbox"/> Seasonal/Intermittent surface water (3)
		<input type="checkbox"/> Perennial surface water (lake or stream) (5)
		3c. Maximum water depth. Select one.
		<input type="checkbox"/> >0.7 (27.6in) (3)
		<input type="checkbox"/> 0.4 to 0.7m (15.7 to 27.6in) (2)
		<input checked="" type="checkbox"/> <0.4m (<15.7in) (1)
		3e. Modifications to natural hydrologic regime. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (12)
		<input type="checkbox"/> Recovered (7)
		<input checked="" type="checkbox"/> Recovering (3)
		<input type="checkbox"/> Recent or no recovery (1)
		3b. Connectivity. Score all that apply.
		<input type="checkbox"/> 100 year floodplain (1)
		<input type="checkbox"/> Between stream/lake and other human use (1)
		<input type="checkbox"/> Part of wetland/upland (e.g. forest), complex (1)
		<input checked="" type="checkbox"/> Part of riparian or upland corridor (1)
		3d. Duration inundation/saturation. Score one or dbl check.
		<input type="checkbox"/> Semi- to permanently inundated/saturated (4)
		<input type="checkbox"/> Regularly inundated/saturated (3)
		<input type="checkbox"/> Seasonally inundated (2)
		<input checked="" type="checkbox"/> Seasonally saturated in upper 30cm (12in) (1)
		Check all disturbances observed
		<input type="checkbox"/> ditch
		<input type="checkbox"/> tile
		<input type="checkbox"/> dike
		<input type="checkbox"/> weir
		<input type="checkbox"/> stormwater input
		<input type="checkbox"/> point source (nonstormwater)
		<input checked="" type="checkbox"/> filling/grading
		<input type="checkbox"/> road bed/RR track
		<input type="checkbox"/> dredging
		<input type="checkbox"/> Other:

10.0	26.0	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (4)
		<input type="checkbox"/> Recovered (3)
		<input checked="" type="checkbox"/> Recovering (2)
		<input type="checkbox"/> Recent or no recovery (1)
		4b. Habitat development. Select only one and assign score.
		<input type="checkbox"/> Excellent (7)
		<input type="checkbox"/> Very good (6)
		<input type="checkbox"/> Good (5)
		<input type="checkbox"/> Moderately good (4)
		<input type="checkbox"/> Fair (3)
		<input checked="" type="checkbox"/> Poor to fair (2)
		<input type="checkbox"/> Poor (1)
		4c. Habitat alteration. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (9)
		<input checked="" type="checkbox"/> Recovered (6)
		<input type="checkbox"/> Recovering (3)
		<input type="checkbox"/> Recent or no recovery (1)
		Check all disturbances observed
		<input checked="" type="checkbox"/> mowing
		<input type="checkbox"/> grazing
		<input checked="" type="checkbox"/> clearcutting
		<input type="checkbox"/> selective cutting
		<input type="checkbox"/> woody debris removal
		<input type="checkbox"/> toxic pollutants
		<input checked="" type="checkbox"/> shrub/sapling removal
		<input type="checkbox"/> herbaceous/aquatic bed removal
		<input type="checkbox"/> sedimentation
		<input type="checkbox"/> dredging
		<input checked="" type="checkbox"/> farming
		<input type="checkbox"/> nutrient enrichment

26.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-023
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/11/2023
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26.0
subtotal this page

Field ID:
W-MRK-023 PEM

0.0	26.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-3.0	23.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersion.

Select only one.

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

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 0 Vegetated hummocks/tussucks
- ☒ 0 Coarse woody debris >15cm (6in)
- ☒ 0 Standing dead >25cm (10in) dbh
- ☒ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

23.0	TOTAL (Max 100 pts)
1	Category

Wetland ID:	W-MRK-023
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	4		
	Metric 2. Buffers and surrounding land use	2		
	Metric 3. Hydrology	10		
	Metric 4. Habitat	10		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersion, microtopography	-3		
	TOTAL SCORE	23		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-023

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	*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	*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	*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?	*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 within 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	*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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	*Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

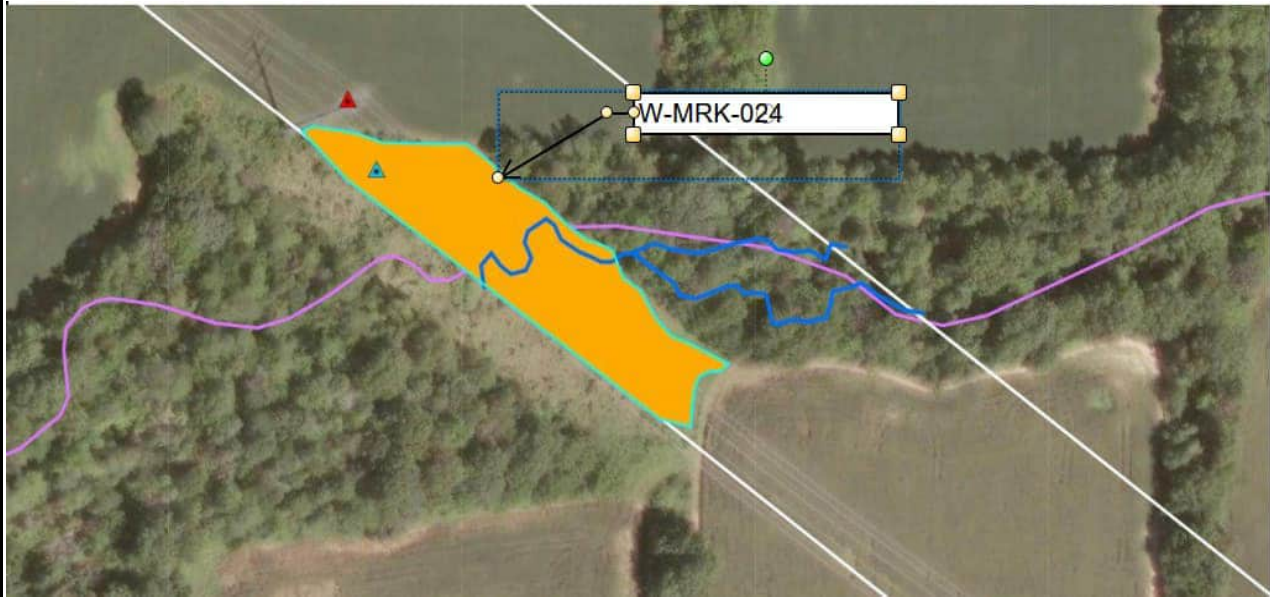
Background Information

Name:	MRK, KRS
Date:	9/12/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-024
Vegetation Communit(ies):	PSS
HGM Class(es):	RIVERINE

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.21279, -82.84142
USGS Quad Name:	Sunbury
County:	Delaware
Township:	Trenton
Section and Subsection:	T4N R16W
Hydrologic Unit Code:	050600011308 - Hoover Reservoir-Big Walnut Creek
Site Visit:	9/12/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-024		
Wetland Size (delineated acres):	1.40	Wetland Size (Estimated total acres):	1.90
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes:			
This PSS wetland is located in a depression on the existing transmission line right-of-way. Depression is collecting surface runoff and is also seasonally flooded by an intermittent watercourse that flows through the wetland.			
Final score:	16	Category:	1

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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	
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.		X

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

Wetland ID: W-MRK-024

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-024

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-024
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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.

Wetland ID:	W-MRK-024
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/12/2023
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2.0	2.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

<input type="checkbox"/>	>50 acres (>20.2ha) (6 pts)
<input type="checkbox"/>	25 to <50 acres (10.1 to <20.2ha) (5 pts)
<input type="checkbox"/>	10 to <25 acres (4 to <10.1ha) (4 pts)
<input type="checkbox"/>	3 to <10 acres (1.2 to <4ha) (3 pts)
<input checked="" type="checkbox"/>	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
<input type="checkbox"/>	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
<input type="checkbox"/>	<0.1 acres (0.04ha) (0 pts)

Field ID:

W-MRK-024 PEM

Delineated acres:	1.40
Total acres:	1.90

1.0	3.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

<input type="checkbox"/>	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
<input type="checkbox"/>	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
<input type="checkbox"/>	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
<input checked="" type="checkbox"/>	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

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

<input type="checkbox"/>	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
<input type="checkbox"/>	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
<input type="checkbox"/>	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
<input checked="" type="checkbox"/>	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7.0	10.0
max 30 pts.	subtotal

Metric 3. Hydrology.

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

<input type="checkbox"/>	High pH groundwater (5)
<input type="checkbox"/>	Other groundwater (3)
<input checked="" type="checkbox"/>	Precipitation (1)
<input type="checkbox"/>	Seasonal/Intermittent surface water (3)
<input type="checkbox"/>	Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select one.

<input type="checkbox"/>	>0.7 (27.6in) (3)
<input type="checkbox"/>	0.4 to 0.7m (15.7 to 27.6in) (2)
<input checked="" type="checkbox"/>	<0.4m (<15.7in) (1)

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

<input type="checkbox"/>	None or none apparent (12)
<input type="checkbox"/>	Recovered (7)
<input checked="" type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

3b. Connectivity. Score all that apply.

<input type="checkbox"/>	100 year floodplain (1)
<input type="checkbox"/>	Between stream/lake and other human use (1)
<input type="checkbox"/>	Part of wetland/upland (e.g. forest), complex (1)
<input checked="" type="checkbox"/>	Part of riparian or upland corridor (1)

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

<input type="checkbox"/>	Semi- to permanently inundated/saturated (4)
<input type="checkbox"/>	Regularly inundated/saturated (3)
<input type="checkbox"/>	Seasonally inundated (2)
<input checked="" type="checkbox"/>	Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

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

7.0	17.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

<input type="checkbox"/>	None or none apparent (4)
<input checked="" type="checkbox"/>	Recovered (3)
<input type="checkbox"/>	Recovering (2)
<input type="checkbox"/>	Recent or no recovery (1)

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

<input type="checkbox"/>	Excellent (7)
<input type="checkbox"/>	Very good (6)
<input type="checkbox"/>	Good (5)
<input type="checkbox"/>	Moderately good (4)
<input type="checkbox"/>	Fair (3)
<input type="checkbox"/>	Poor to fair (2)
<input checked="" type="checkbox"/>	Poor (1)

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

<input type="checkbox"/>	None or none apparent (9)
<input type="checkbox"/>	Recovered (6)
<input checked="" type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

Check all disturbances observed

<input checked="" type="checkbox"/>	mowing	<input checked="" type="checkbox"/>	shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/>	herbaceous/aquatic bed removal
<input checked="" 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 type="checkbox"/>	nutrient enrichment

17.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-024
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/12/2023
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17.0
subtotal this page

Field ID:
W-MRK-024 PEM

0.0	17.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-1.0	16.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersion.

Select only one.

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

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 0 Vegetated hummocks/tussucks
- ☒ 0 Coarse woody debris >15cm (6in)
- ☒ 0 Standing dead >25cm (10in) dbh
- ☒ 0 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 1 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 2 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 3 vegetation and is of high quality |

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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 |

16.0	TOTAL (Max 100 pts)
1	Category

Wetland ID:	W-MRK-024
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2		
	Metric 2. Buffers and surrounding land use	1		
	Metric 3. Hydrology	7		
	Metric 4. Habitat	7		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersions, microtopography	-1		
	TOTAL SCORE	16		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-024

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	*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	*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	*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?	*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 within 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	*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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

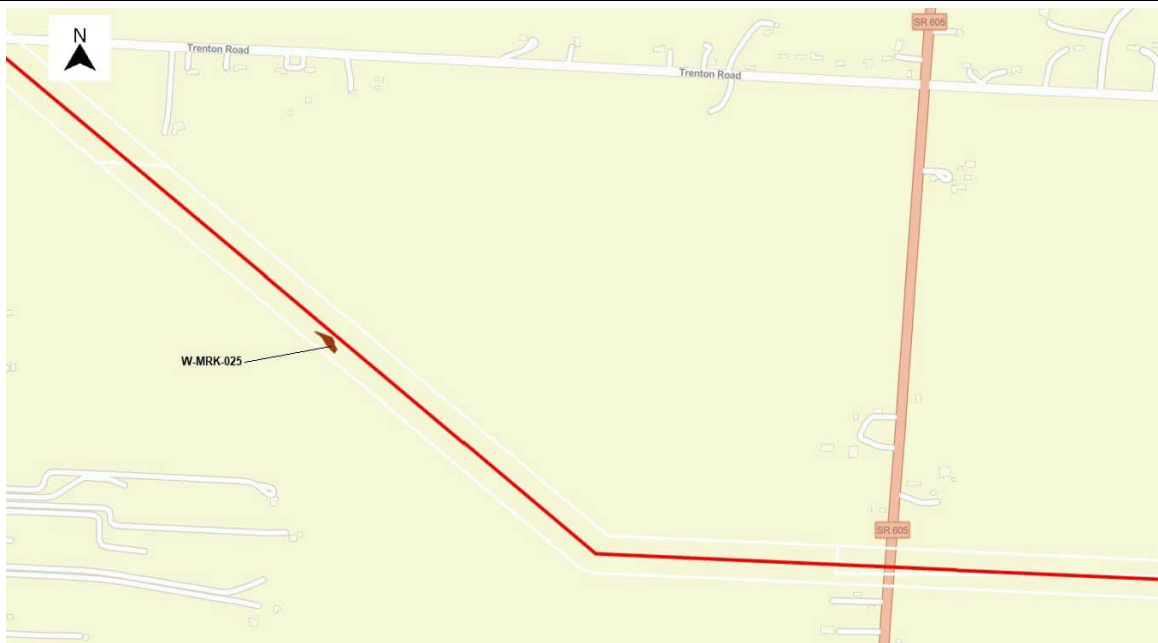
Choose one	*Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.


Background Information

Name:	MRK, KRS
Date:	9/12/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-025
Vegetation Communit(ies):	PFO
HGM Class(es):	DEPRESSION

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.19767, -82.81806
USGS Quad Name:	Sunbury
County:	Delaware
Township:	Harlem
Section and Subsection:	T3N 16W
Hydrologic Unit Code:	050600011308 - Hoover Reservoir-Big Walnut Creek
Site Visit:	9/12/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-025		
Wetland Size (delineated acres):	0.16	Wetland Size (Estimated total acres):	0.16
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
<div><div>N</div></div>			
Comments, Narrative Discussion, Justification of Category Changes:			
<p>This PFO wetland is located in a depression. Depression is seasonally flooded. The wetland boundary follows edge of depression and hydrophytic vegetation dominated by <i>Quercus palustris</i>.</p>			
Final score:	30	Category:	1 or 2 Gray Zone

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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	
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.		X

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

Wetland ID: W-MRK-025

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-025

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-025
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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.

Wetland ID: W-MRK-025

Site: Vassell-Green Chapel Rater(s): MRK, KRS Date: 9/12/2023

1.0 1.0
max 6 pts subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

Field ID:

W-MRK-025 PFO

Delineated acres:	0.16
Total acres:	0.16

4.0 5.0
max 14 pts. subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☐ LOW. Old field (>10 years), shrubland, 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)

11.0 16.0
max 30 pts. subtotal

Metric 3. Hydrology.

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

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

3c. Maximum water depth. Select one.

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

- ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input
☐ point source (nonstormwater)
☒ filling/grading
☐ road bed/RR track
☐ dredging
☐ Other:

9.0 25.0
max 20 pts. subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

- ☐ mowing
☐ grazing
☒ clearcutting
☐ selective cutting
☐ woody debris removal
☐ toxic pollutants
☐ shrub/sapling removal
☐ herbaceous/aquatic bed removal
☐ sedimentation
☐ dredging
☒ farming
☐ nutrient enrichment

25.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID: W-MRK-025

Site: Vassell-Green Chapel Rater(s): MRK, KRS Date: 9/12/2023

25.0
subtotal this page

Field ID:
W-MRK-025 PFO

0.0 25.0
max 10 pts. subtotal

Metric 5. Special Wetlands.
Check all that apply and score as indicated.

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

5.0 30.0
max 20pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersion.

Select only one.

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

6c. Coverage of invasive plants. Refer

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)
☒ x Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks
☐ 0 Coarse woody debris >15cm (6in)
☒ 1 Standing dead >25cm (10in) dbh
☐ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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

30.0 TOTAL (Max 100 pts)
1 or 2 Gray Zone Category

Wetland ID:	W-MRK-025
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1		
	Metric 2. Buffers and surrounding land use	4		
	Metric 3. Hydrology	11		
	Metric 4. Habitat	9		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersion, microtopography	5		
	TOTAL SCORE	30		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-025

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	*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	*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	*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?	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 within 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	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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

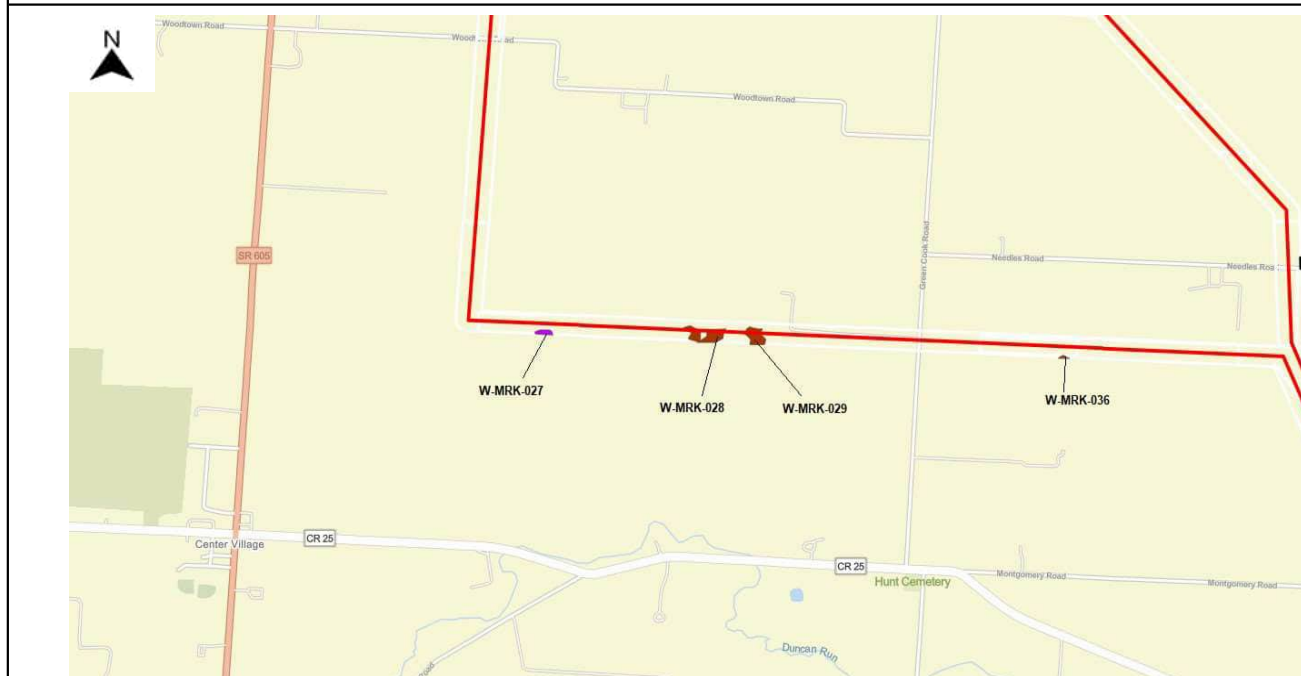
Choose one	Category 1	*Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.


Background Information

Name:	MRK, KRS
Date:	9/13/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-027
Vegetation Communit(ies):	PEM
HGM Class(es):	DEPRESSION

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.17397, -82.79460
USGS Quad Name:	Sunbury
County:	Delaware
Township:	Harlem
Section and Subsection:	T3N R16W
Hydrologic Unit Code:	050600011308 - Hoover Reservoir-Big Walnut Creek
Site Visit:	9/13/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-027		
Wetland Size (delineated acres):	0.30	Wetland Size (Estimated total acres):	0.50
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
<div><div>N</div></div>			
Comments, Narrative Discussion, Justification of Category Changes:			
<p>This PEM wetland is located in a depression adjacent to an agricultural field. Depression is inundated and heavy siltation is present from agricultural runoff. The wetland boundary follows depression and surface water edge.</p>			
Final score:	21	Category:	1

Wetland ID:	W-MRK-027
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	
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.		X

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

Wetland ID: W-MRK-027

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-027

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-027
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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.

Wetland ID:	W-MRK-027
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/13/2023
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2.0	2.0	Metric 1. Wetland Area (size).	Field ID:
max 6 pts	subtotal	Select one size class and assign score.	W-MRK-027 PEM
		<input type="checkbox"/> >50 acres (>20.2ha) (6 pts)	
		<input type="checkbox"/> 25 to <50 acres (10.1 to <20.2ha) (5 pts)	
		<input type="checkbox"/> 10 to <25 acres (4 to <10.1ha) (4 pts)	
		<input type="checkbox"/> 3 to <10 acres (1.2 to <4ha) (3 pts)	
		<input checked="" type="checkbox"/> 0.3 to <3 acres (0.12 to <1.2ha) (2pts)	
		<input type="checkbox"/> 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	
		<input type="checkbox"/> <0.1 acres (0.04ha) (0 pts)	
		Delineated acres:	0.30
		Total acres:	0.50

1.0	3.0	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.
		<input type="checkbox"/> WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
		<input type="checkbox"/> MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
		<input type="checkbox"/> NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
		<input checked="" type="checkbox"/> VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
		2b. Intensity of surrounding land use. Select one or double check and average.
		<input type="checkbox"/> VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
		<input type="checkbox"/> LOW. Old field (>10 years), shrubland, young second growth forest. (5)
		<input type="checkbox"/> MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
		<input checked="" type="checkbox"/> HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9.0	12.0	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply.
		<input type="checkbox"/> High pH groundwater (5)
		<input type="checkbox"/> Other groundwater (3)
		<input checked="" type="checkbox"/> Precipitation (1)
		<input type="checkbox"/> Seasonal/Intermittent surface water (3)
		<input type="checkbox"/> Perennial surface water (lake or stream) (5)
		3c. Maximum water depth. Select one.
		<input type="checkbox"/> >0.7 (27.6in) (3)
		<input type="checkbox"/> 0.4 to 0.7m (15.7 to 27.6in) (2)
		<input checked="" type="checkbox"/> <0.4m (<15.7in) (1)
		3e. Modifications to natural hydrologic regime. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (12)
		<input type="checkbox"/> Recovered (7)
		<input checked="" type="checkbox"/> Recovering (3)
		<input type="checkbox"/> Recent or no recovery (1)
		3b. Connectivity. Score all that apply.
		<input type="checkbox"/> 100 year floodplain (1)
		<input type="checkbox"/> Between stream/lake and other human use (1)
		<input type="checkbox"/> Part of wetland/upland (e.g. forest), complex (1)
		<input checked="" type="checkbox"/> Part of riparian or upland corridor (1)
		3d. Duration inundation/saturation. Score one or dbl check.
		<input type="checkbox"/> Semi- to permanently inundated/saturated (4)
		<input checked="" type="checkbox"/> Regularly inundated/saturated (3)
		<input type="checkbox"/> Seasonally inundated (2)
		<input type="checkbox"/> Seasonally saturated in upper 30cm (12in) (1)
		Check all disturbances observed
		<input type="checkbox"/> ditch
		<input type="checkbox"/> tile
		<input type="checkbox"/> dike
		<input type="checkbox"/> weir
		<input type="checkbox"/> stormwater input
		<input checked="" type="checkbox"/> point source (nonstormwater)
		<input checked="" type="checkbox"/> filling/grading
		<input type="checkbox"/> road bed/RR track
		<input type="checkbox"/> dredging
		<input type="checkbox"/> Other:

8.0	20.0	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (4)
		<input type="checkbox"/> Recovered (3)
		<input checked="" type="checkbox"/> Recovering (2)
		<input type="checkbox"/> Recent or no recovery (1)
		4b. Habitat development. Select only one and assign score.
		<input type="checkbox"/> Excellent (7)
		<input type="checkbox"/> Very good (6)
		<input type="checkbox"/> Good (5)
		<input type="checkbox"/> Moderately good (4)
		<input checked="" type="checkbox"/> Fair (3)
		<input type="checkbox"/> Poor to fair (2)
		<input type="checkbox"/> Poor (1)
		4c. Habitat alteration. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (9)
		<input type="checkbox"/> Recovered (6)
		<input checked="" type="checkbox"/> Recovering (3)
		<input type="checkbox"/> Recent or no recovery (1)
		Check all disturbances observed
		<input checked="" type="checkbox"/> mowing
		<input type="checkbox"/> grazing
		<input type="checkbox"/> clearcutting
		<input type="checkbox"/> selective cutting
		<input type="checkbox"/> woody debris removal
		<input type="checkbox"/> toxic pollutants
		<input type="checkbox"/> shrub/sapling removal
		<input type="checkbox"/> herbaceous/aquatic bed removal
		<input checked="" type="checkbox"/> sedimentation
		<input type="checkbox"/> dredging
		<input checked="" type="checkbox"/> farming
		<input type="checkbox"/> nutrient enrichment

20.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-027
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/13/2023
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20.0
subtotal this page

Field ID:
W-MRK-027 PEM

0.0	20.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1.0	21.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

<input type="checkbox"/>	Aquatic bed
<input checked="" type="checkbox"/>	Emergent
<input type="checkbox"/>	Shrub
<input type="checkbox"/>	Forest
<input type="checkbox"/>	Mudflats
<input type="checkbox"/>	Open water
<input type="checkbox"/>	Other

6b. horizontal (plan view) Interspersions.

Select only one.

<input type="checkbox"/>	High (5)
<input type="checkbox"/>	Moderately high(4)
<input type="checkbox"/>	Moderate (3)
<input type="checkbox"/>	Moderately low (2)
<input checked="" type="checkbox"/>	Low (1)
<input type="checkbox"/>	None (0)

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

<input type="checkbox"/>	Extensive >75% cover (-5)
<input checked="" type="checkbox"/>	Moderate 25-75% cover (-3)
<input type="checkbox"/>	Sparse 5-25% cover (-1)
<input type="checkbox"/>	Nearly absent <5% cover (0)
<input type="checkbox"/>	Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

<input type="checkbox"/>	0	Vegetated hummocks/tussucks
<input type="checkbox"/>	0	Coarse woody debris >15cm (6in)
<input type="checkbox"/>	0	Standing dead >25cm (10in) dbh
<input type="checkbox"/>	2	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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod 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 to
A predominance of native species, with nonnative spp high 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

21.0	TOTAL (Max 100 pts)
1	Category

Wetland ID: W-MRK-027

ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	2		
	Metric 2. Buffers and surrounding land use	1		
	Metric 3. Hydrology	9		
	Metric 4. Habitat	8		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersions, microtopography	1		
	TOTAL SCORE	21		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-027

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	*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	*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	*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?	*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 within 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	*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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

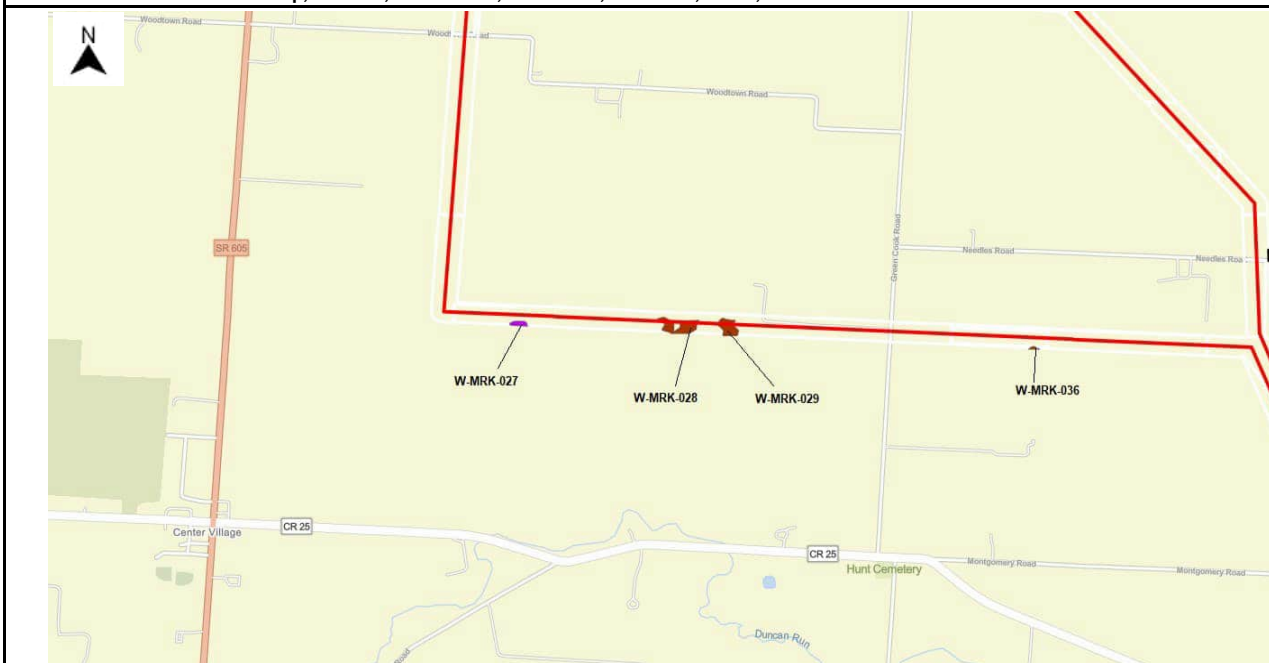
Choose one	*Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	MRK, KRS
Date:	9/13/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-028, W-MRK-029
Vegetation Communit(ies):	PFO
HGM Class(es):	DEPRESSION

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	W-MRK-028: 40.17378, -82.78747 and W-MRK-029: 40.17388, -82.78568
USGS Quad Name:	Sunbury
County:	Delaware
Township:	Harlem
Section and Subsection:	T3N R16W
Hydrologic Unit Code:	050600011308 - Hoover Reservoir-Big Walnut Creek
Site Visit:	9/13/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-028, W-MRK-029		
Wetland Size (delineated acres):	2.60	Wetland Size (Estimated total acres):	>3 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
<div></div>			
Comments, Narrative Discussion, Justification of Category Changes:			
<p>These are PFO wetlands located within a large forested depression that is collecting surface runoff from the surrounding area. Wetlands are seasonally inundated, which was observed based on water stained leaves in the depression.</p>			
Final score:	42	Category:	Modified 2

Wetland ID:	W-MRK-028, W-MRK-029
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	
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.		X

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

Wetland ID: W-MRK-028, W-MRK-029

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID:	W-MRK-028, W-MRK-029
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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	<div>*NO</div> 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	<div>*NO</div> 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	<div>*NO</div> 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	<div>*NO</div> Complete Quantitative Rating

Wetland ID:	W-MRK-028, W-MRK-029
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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.

Wetland ID:	W-MRK-028, W-MRK-029
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/13/2023
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3.0	3.0	Metric 1. Wetland Area (size).	Field ID:
max 6 pts	subtotal	Select one size class and assign score.	W-MRK-028 PFO, W-MRK-029 PFO
		<input type="checkbox"/> >50 acres (>20.2ha) (6 pts)	
		<input type="checkbox"/> 25 to <50 acres (10.1 to <20.2ha) (5 pts)	
		<input type="checkbox"/> 10 to <25 acres (4 to <10.1ha) (4 pts)	
		<input checked="" type="checkbox"/> 3 to <10 acres (1.2 to <4ha) (3 pts)	
		<input type="checkbox"/> 0.3 to <3 acres (0.12 to <1.2ha) (2pts)	
		<input type="checkbox"/> 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	
		<input type="checkbox"/> <0.1 acres (0.04ha) (0 pts)	
			Delineated acres: 2.60
			Total acres: >3 acres

6.0	9.0	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.
		<input type="checkbox"/> WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
		<input type="checkbox"/> MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
		<input checked="" type="checkbox"/> NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
		<input type="checkbox"/> VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
		2b. Intensity of surrounding land use. Select one or double check and average.
		<input type="checkbox"/> VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
		<input checked="" type="checkbox"/> LOW. Old field (>10 years), shrubland, young second growth forest. (5)
		<input type="checkbox"/> MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
		<input type="checkbox"/> HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

12.0	21.0	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply.
		<input type="checkbox"/> High pH groundwater (5)
		<input type="checkbox"/> Other groundwater (3)
		<input checked="" type="checkbox"/> Precipitation (1)
		<input type="checkbox"/> Seasonal/Intermittent surface water (3)
		<input type="checkbox"/> Perennial surface water (lake or stream) (5)
		3c. Maximum water depth. Select one.
		<input type="checkbox"/> >0.7 (27.6in) (3)
		<input type="checkbox"/> 0.4 to 0.7m (15.7 to 27.6in) (2)
		<input checked="" type="checkbox"/> <0.4m (<15.7in) (1)
		3e. Modifications to natural hydrologic regime. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (12)
		<input checked="" type="checkbox"/> Recovered (7)
		<input type="checkbox"/> Recovering (3)
		<input type="checkbox"/> Recent or no recovery (1)
		3b. Connectivity. Score all that apply.
		<input type="checkbox"/> 100 year floodplain (1)
		<input type="checkbox"/> Between stream/lake and other human use (1)
		<input type="checkbox"/> Part of wetland/upland (e.g. forest), complex (1)
		<input checked="" type="checkbox"/> Part of riparian or upland corridor (1)
		3d. Duration inundation/saturation. Score one or dbl check.
		<input type="checkbox"/> Semi- to permanently inundated/saturated (4)
		<input type="checkbox"/> Regularly inundated/saturated (3)
		<input checked="" type="checkbox"/> Seasonally inundated (2)
		<input type="checkbox"/> Seasonally saturated in upper 30cm (12in) (1)
		Check all disturbances observed
		<input type="checkbox"/> ditch
		<input type="checkbox"/> tile
		<input type="checkbox"/> dike
		<input type="checkbox"/> weir
		<input type="checkbox"/> stormwater input
		<input type="checkbox"/> point source (nonstormwater)
		<input checked="" type="checkbox"/> filling/grading
		<input type="checkbox"/> road bed/RR track
		<input type="checkbox"/> dredging
		<input type="checkbox"/> Other:

12.0	33.0	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (4)
		<input checked="" type="checkbox"/> Recovered (3)
		<input type="checkbox"/> Recovering (2)
		<input type="checkbox"/> Recent or no recovery (1)
		4b. Habitat development. Select only one and assign score.
		<input type="checkbox"/> Excellent (7)
		<input type="checkbox"/> Very good (6)
		<input type="checkbox"/> Good (5)
		<input type="checkbox"/> Moderately good (4)
		<input checked="" type="checkbox"/> Fair (3)
		<input type="checkbox"/> Poor to fair (2)
		<input type="checkbox"/> Poor (1)
		4c. Habitat alteration. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (9)
		<input checked="" type="checkbox"/> Recovered (6)
		<input type="checkbox"/> Recovering (3)
		<input type="checkbox"/> Recent or no recovery (1)
		Check all disturbances observed
		<input checked="" type="checkbox"/> mowing
		<input type="checkbox"/> grazing
		<input checked="" type="checkbox"/> clearcutting
		<input type="checkbox"/> selective cutting
		<input type="checkbox"/> woody debris removal
		<input type="checkbox"/> toxic pollutants
		<input type="checkbox"/> shrub/sapling removal
		<input type="checkbox"/> herbaceous/aquatic bed removal
		<input checked="" type="checkbox"/> sedimentation
		<input type="checkbox"/> dredging
		<input checked="" type="checkbox"/> farming
		<input type="checkbox"/> nutrient enrichment

33.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-028, W-MRK-029
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/13/2023
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33.0
subtotal this page

Field ID:
W-MRK-028 PFO, W-MRK-029 PFO

0.0	33.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

9.0	42.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- | | |
|--------------------------|-------------|
| <input type="checkbox"/> | Aquatic bed |
| <input type="checkbox"/> | Emergent |
| <input type="checkbox"/> | Shrub |
| 2 | Forest |
| <input type="checkbox"/> | Mudflats |
| <input type="checkbox"/> | Open water |
| <input type="checkbox"/> | Other |

6b. horizontal (plan view) Interspersions.

Select only one.

- | | |
|--------------------------|--------------------|
| <input type="checkbox"/> | High (5) |
| <input type="checkbox"/> | Moderately high(4) |
| <input type="checkbox"/> | Moderate (3) |
| <input type="checkbox"/> | Moderately low (2) |
| x | Low (1) |
| <input type="checkbox"/> | None (0) |

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

- | | |
|--------------------------|-----------------------------|
| <input type="checkbox"/> | Extensive >75% cover (-5) |
| <input type="checkbox"/> | Moderate 25-75% cover (-3) |
| <input type="checkbox"/> | Sparse 5-25% cover (-1) |
| <input type="checkbox"/> | Nearly absent <5% cover (0) |
| x | Absent (1) |

6d. Microtopography.

Score all present using 0 to 3 scale.

- | | |
|---|---------------------------------|
| 0 | Vegetated hummocks/tussucks |
| 2 | Coarse woody debris >15cm (6in) |
| 1 | Standing dead >25cm (10in) dbh |
| 2 | 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 1 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 2 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 3 vegetation and is of high quality |

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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 |

42.0	TOTAL (Max 100 pts)
Modified 2	Category

Wetland ID:	W-MRK-028, W-MRK-029
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	3		
	Metric 2. Buffers and surrounding land use	6		
	Metric 3. Hydrology	12		
	Metric 4. Habitat	12		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersion, microtopography	9		
	TOTAL SCORE	42		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-028, W-MRK-029

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	*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	*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	*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?	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	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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

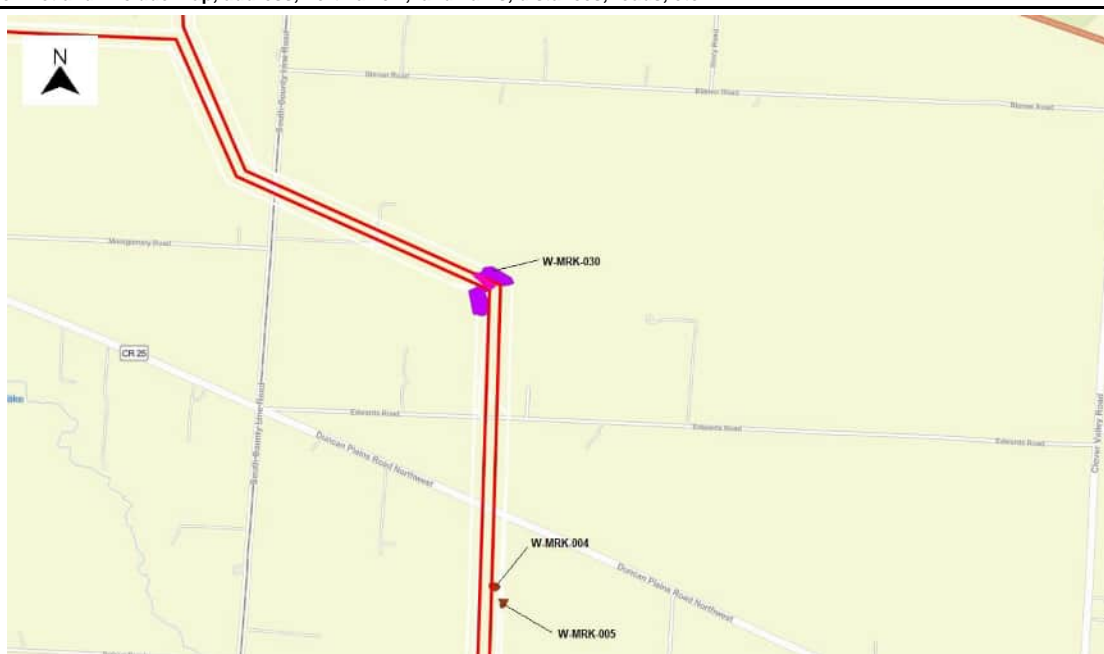
Choose one	Category 1	*Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	MRK, KRS
Date:	9/13/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-030
Vegetation Communit(ies):	PEM/PFO
HGM Class(es):	DEPRESSION

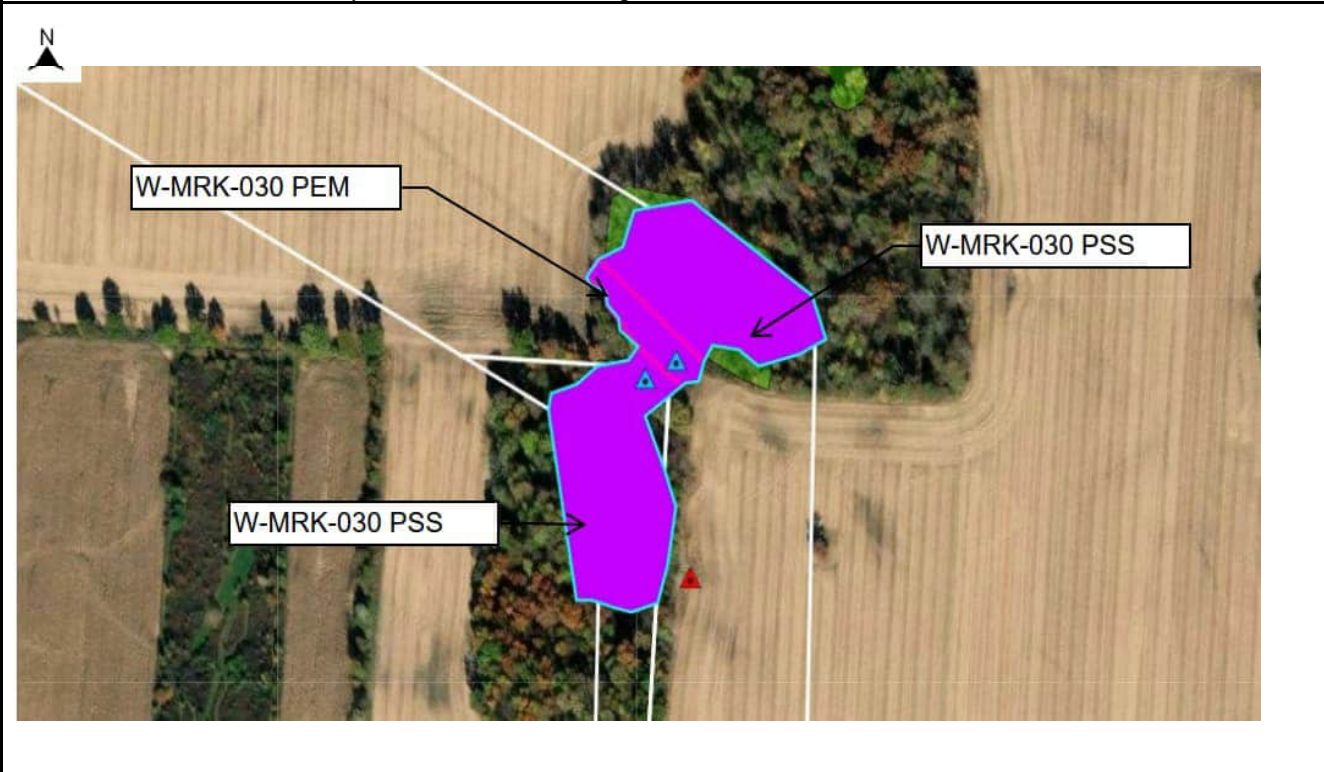
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	PEM: 40.16174, -82.74871 and PFO: 40.16161, -82.74894
USGS Quad Name:	Johnstown
County:	Licking
Township:	Monroe
Section and Subsection:	S15 T3N R15W
Hydrologic Unit Code:	050600011307 - Duncan Run
Site Visit:	9/13/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-030		
Wetland Size (delineated acres):	4.90	Wetland Size (Estimated total acres):	<10 acres

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

This PFO section of a PEM/PFO wetland complex is located in a depression surrounding a PEM section. Surface runoff drains out of the PFO section to the south, flows into the PEM, and flows north into another PFO section.

Final score:	45	Category:	2
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Wetland ID:	W-MRK-030
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	
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.		X

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

Wetland ID: W-MRK-030

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-030

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-030
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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.

Wetland ID:	W-MRK-030
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/13/2023
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3.0	3.0	Metric 1. Wetland Area (size).	Field ID:
max 6 pts	subtotal	Select one size class and assign score.	W-MRK-030 PEM/PFO
		<input type="checkbox"/> >50 acres (>20.2ha) (6 pts)	
		<input type="checkbox"/> 25 to <50 acres (10.1 to <20.2ha) (5 pts)	
		<input type="checkbox"/> 10 to <25 acres (4 to <10.1ha) (4 pts)	
		<input checked="" type="checkbox"/> 3 to <10 acres (1.2 to <4ha) (3 pts)	
		<input type="checkbox"/> 0.3 to <3 acres (0.12 to <1.2ha) (2pts)	
		<input type="checkbox"/> 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	
		<input type="checkbox"/> <0.1 acres (0.04ha) (0 pts)	
			Delineated acres: 4.90
			Total acres: <10 acres

6.0	9.0	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.
		<input type="checkbox"/> WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
		<input type="checkbox"/> MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
		<input checked="" type="checkbox"/> NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
		<input type="checkbox"/> VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
		2b. Intensity of surrounding land use. Select one or double check and average.
		<input type="checkbox"/> VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
		<input checked="" type="checkbox"/> LOW. Old field (>10 years), shrubland, young second growth forest. (5)
		<input type="checkbox"/> MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
		<input type="checkbox"/> HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

12.0	21.0	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply.
		<input type="checkbox"/> High pH groundwater (5)
		<input type="checkbox"/> Other groundwater (3)
		<input checked="" type="checkbox"/> Precipitation (1)
		<input type="checkbox"/> Seasonal/Intermittent surface water (3)
		<input type="checkbox"/> Perennial surface water (lake or stream) (5)
		3c. Maximum water depth. Select one.
		<input type="checkbox"/> >0.7 (27.6in) (3)
		<input type="checkbox"/> 0.4 to 0.7m (15.7 to 27.6in) (2)
		<input checked="" type="checkbox"/> <0.4m (<15.7in) (1)
		3e. Modifications to natural hydrologic regime. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (12)
		<input checked="" type="checkbox"/> Recovered (7)
		<input type="checkbox"/> Recovering (3)
		<input type="checkbox"/> Recent or no recovery (1)
		3b. Connectivity. Score all that apply.
		<input type="checkbox"/> 100 year floodplain (1)
		<input type="checkbox"/> Between stream/lake and other human use (1)
		<input type="checkbox"/> Part of wetland/upland (e.g. forest), complex (1)
		<input checked="" type="checkbox"/> Part of riparian or upland corridor (1)
		3d. Duration inundation/saturation. Score one or dbl check.
		<input type="checkbox"/> Semi- to permanently inundated/saturated (4)
		<input type="checkbox"/> Regularly inundated/saturated (3)
		<input checked="" type="checkbox"/> Seasonally inundated (2)
		<input type="checkbox"/> Seasonally saturated in upper 30cm (12in) (1)
		Check all disturbances observed
		<input type="checkbox"/> ditch
		<input type="checkbox"/> tile
		<input type="checkbox"/> dike
		<input type="checkbox"/> weir
		<input type="checkbox"/> stormwater input
		<input type="checkbox"/> point source (nonstormwater)
		<input checked="" type="checkbox"/> filling/grading
		<input type="checkbox"/> road bed/RR track
		<input type="checkbox"/> dredging
		<input type="checkbox"/> Other:

12.0	33.0	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (4)
		<input checked="" type="checkbox"/> Recovered (3)
		<input type="checkbox"/> Recovering (2)
		<input type="checkbox"/> Recent or no recovery (1)
		4b. Habitat development. Select only one and assign score.
		<input type="checkbox"/> Excellent (7)
		<input type="checkbox"/> Very good (6)
		<input type="checkbox"/> Good (5)
		<input type="checkbox"/> Moderately good (4)
		<input checked="" type="checkbox"/> Fair (3)
		<input type="checkbox"/> Poor to fair (2)
		<input type="checkbox"/> Poor (1)
		4c. Habitat alteration. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (9)
		<input checked="" type="checkbox"/> Recovered (6)
		<input type="checkbox"/> Recovering (3)
		<input type="checkbox"/> Recent or no recovery (1)
		Check all disturbances observed
		<input checked="" type="checkbox"/> mowing
		<input type="checkbox"/> grazing
		<input checked="" type="checkbox"/> clearcutting
		<input type="checkbox"/> selective cutting
		<input type="checkbox"/> woody debris removal
		<input type="checkbox"/> toxic pollutants
		<input type="checkbox"/> shrub/sapling removal
		<input type="checkbox"/> herbaceous/aquatic bed removal
		<input checked="" type="checkbox"/> sedimentation
		<input type="checkbox"/> dredging
		<input checked="" type="checkbox"/> farming
		<input type="checkbox"/> nutrient enrichment

33.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-030
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/13/2023
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33.0
subtotal this page

Field ID:
W-MRK-030 PEM/PFO

0.0	33.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

12.0	45.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- | | |
|--------------------------|-------------|
| <input type="checkbox"/> | Aquatic bed |
| 1 | Emergent |
| <input type="checkbox"/> | Shrub |
| 2 | Forest |
| <input type="checkbox"/> | Mudflats |
| <input type="checkbox"/> | Open water |
| <input type="checkbox"/> | Other _____ |

6b. horizontal (plan view) Interspersions.

Select only one.

- | | |
|--------------------------|--------------------|
| <input type="checkbox"/> | High (5) |
| <input type="checkbox"/> | Moderately high(4) |
| x | Moderate (3) |
| <input type="checkbox"/> | Moderately low (2) |
| <input type="checkbox"/> | Low (1) |
| <input type="checkbox"/> | None (0) |

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

- | | |
|--------------------------|-----------------------------|
| <input type="checkbox"/> | Extensive >75% cover (-5) |
| <input type="checkbox"/> | Moderate 25-75% cover (-3) |
| <input type="checkbox"/> | Sparse 5-25% cover (-1) |
| <input type="checkbox"/> | Nearly absent <5% cover (0) |
| x | Absent (1) |

6d. Microtopography.

Score all present using 0 to 3 scale.

- | | |
|---|---------------------------------|
| 0 | Vegetated hummocks/tussocks |
| 2 | Coarse woody debris >15cm (6in) |
| 1 | Standing dead >25cm (10in) dbh |
| 2 | 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 1 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 2 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 3 vegetation and is of high quality |

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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 |

45.0	TOTAL (Max 100 pts)
2	Category

Wetland ID:	W-MRK-030
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	3		
	Metric 2. Buffers and surrounding land use	6		
	Metric 3. Hydrology	12		
	Metric 4. Habitat	12		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersed, microtopography	12		
	TOTAL SCORE	45		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-030

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	*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	*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	*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?	*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 within 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	*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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	Category 1	*Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.


Background Information

Name:	MRK, KRS
Date:	9/14/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-031
Vegetation Communit(ies):	PFO
HGM Class(es):	DEPRESSION

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.14055, -82.74988
USGS Quad Name:	Johnstown
County:	Licking
Township:	Monroe
Section and Subsection:	S25 T3N T15W
Hydrologic Unit Code:	050600011307 - Duncan Run
Site Visit:	9/14/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-031		
Wetland Size (delineated acres):	0.08	Wetland Size (Estimated total acres):	0.08
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes:			
This PFO wetland is located within a forested area surrounded by agriculture. The wetland is collecting surface runoff from the surrounding area. The wetland boundary follows edge of depression and water stained leaves.			
Final score:	30	Category:	1 or 2 Gray Zone

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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	
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.		X

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

Wetland ID: W-MRK-031

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-031

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-031
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-031
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/14/2023
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0.0	0.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).**Select one size class and assign score.**

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

Field ID:

W-MRK-031 PFO

Delineated acres:	0.08
Total acres:	0.08

6.0	6.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.**2a. Calculate average buffer width. Select only one and assign score. Do not double check.**

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

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

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, 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)

8.0	14.0
max 6 pts.	subtotal

Metric 3. Hydrology.**3a. Sources of Water. Score all that apply.**

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

3c. Maximum water depth. Select one.

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

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

12.0	26.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.**4a. Substrate disturbance. Score one or double check and average.**

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

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

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

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

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

Check all disturbances observed

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

26.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-031
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/14/2023
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26.0
subtotal this page

Field ID:
W-MRK-031 PFO

0.0	26.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

4.0	30.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
☐ Emergent
☐ Shrub
☐ 1 Forest
☐ Mudflats
☐ Open water
☐ Other _____

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

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.

- ☐ 0 Vegetated hummocks/tussocks
☐ 1 Coarse woody debris >15cm (6in)
☐ 0 Standing dead >25cm (10in) dbh
☐ 1 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 1 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 2 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 3 vegetation and is of high quality |

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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 |

30.0	TOTAL (Max 100 pts)
1 or 2 Gray Zone	Category

Wetland ID:	W-MRK-031
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0		
	Metric 2. Buffers and surrounding land use	6		
	Metric 3. Hydrology	8		
	Metric 4. Habitat	12		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersion, microtopography	4		
	TOTAL SCORE	30		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-031

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	*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	*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	*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?	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	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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

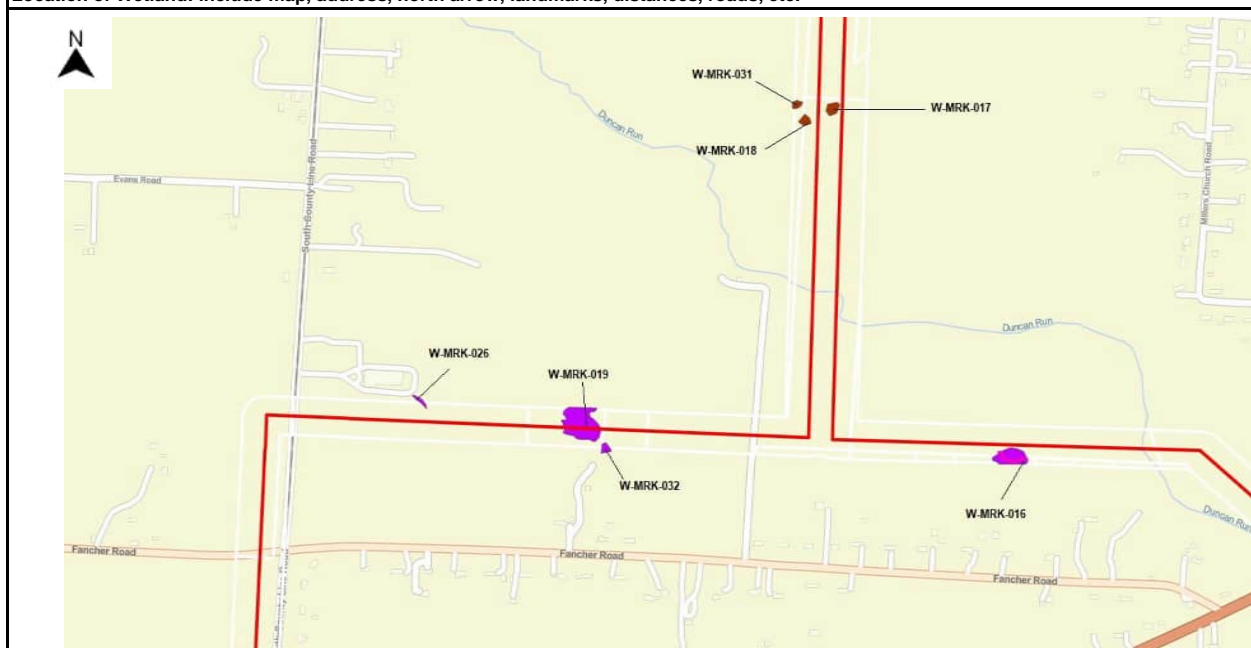
Choose one	Category 1	*Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	MRK, KRS
Date:	9/14/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-032
Vegetation Communit(ies):	PEM
HGM Class(es):	DEPRESSION

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.13307, -82.75424
USGS Quad Name:	Sunbury
County:	Licking
Township:	Monroe
Section and Subsection:	S25 T3N R15W
Hydrologic Unit Code:	050600011307 - Duncan Run
Site Visit:	9/14/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:		W-MRK-032	
Wetland Size (delineated acres):		0.07	Wetland Size (Estimated total acres): 0.07
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
Comments, Narrative Discussion, Justification of Category Changes: This PEM wetland is located in a depression within a pasture. The depression is collecting surface runoff and overflow from an adjacent pond. The wetland boundary follows the edge of depression.			
Final score:		14	Category: 1

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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	
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.		X

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

Wetland ID: W-MRK-032

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-032

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-032
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-032
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/14/2023
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0.0	0.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

Field ID:

W-MRK-032 PEM

Delineated acres:	0.07
Total acres:	0.07

2.0	2.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

7.0	9.0
max 6 pts.	subtotal

Metric 3. Hydrology.

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

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

3c. Maximum water depth. Select one.

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

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

5.0	14.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

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

14.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-032
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/14/2023
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Field ID:

W-MRK-032 PEM

14.0
subtotal this page

0.0	14.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

0.0	14.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 0 Vegetated hummocks/tussocks
- ☒ 0 Coarse woody debris >15cm (6in)
- ☒ 0 Standing dead >25cm (10in) dbh
- ☒ 0 Amphibian 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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

14.0	TOTAL (Max 100 pts)
1	Category

Wetland ID:	W-MRK-032
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0		
	Metric 2. Buffers and surrounding land use	2		
	Metric 3. Hydrology	7		
	Metric 4. Habitat	5		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersion, microtopography	0		
	TOTAL SCORE	14		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-032

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	*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	*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	*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?	*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	*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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

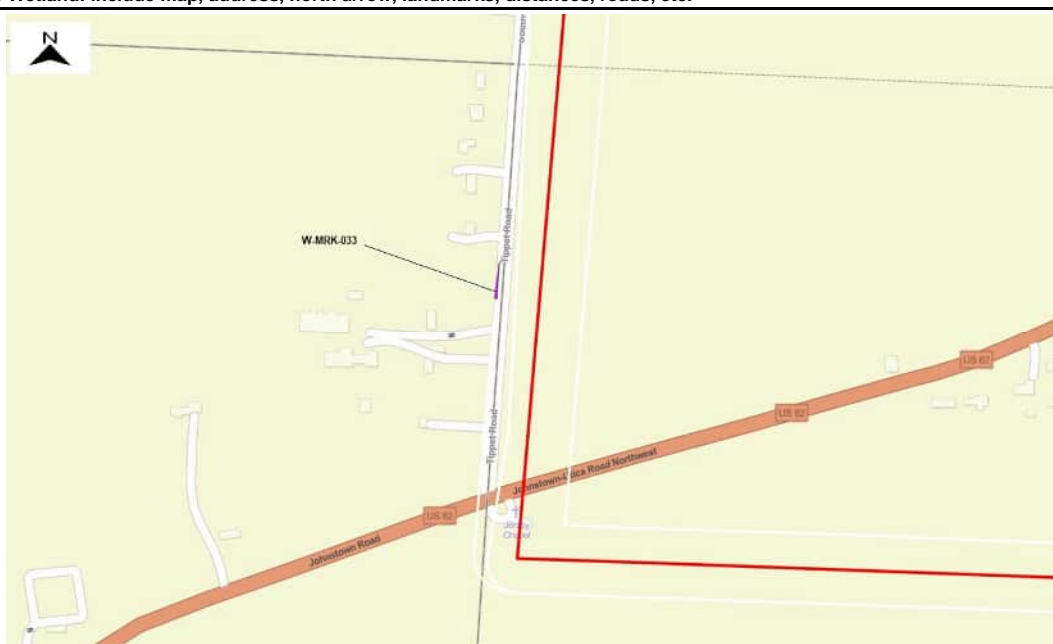
Choose one	*Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	MRK, KRS
Date:	9/14/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	814-516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-033
Vegetation Communit(ies):	PEM
HGM Class(es):	DEPRESSION

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.12324, -82.76209
USGS Quad Name:	New Albany
County:	Franklin
Township:	Plain
Section and Subsection:	S1 T2N R16W
Hydrologic Unit Code:	050600011503 - Headwaters Blacklick Creek
Site Visit:	9/14/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-033		
Wetland Size (delineated acres):	0.01	Wetland Size (Estimated total acres):	0.01
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
<div><div><div>N</div></div></div>			
Comments, Narrative Discussion, Justification of Category Changes:			
<p>This PEM wetland is located in a depression and begins at a hillside sping seep. Water follows the depression and drains down the slope to stream S-MRK-030. The wetland boundary follows edge of depression.</p>			
Final score:	19	Category:	1

Wetland ID:	W-MRK-033
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	
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.		X

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

Wetland ID: W-MRK-033

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-033

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-033
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-033
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	9/14/2023
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0.0	0.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

Field ID:

W-MRK-033 PEM

Delineated acres:	0.01
Total acres:	0.01

4.0	4.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

7.0	11.0
max 6 pts.	subtotal

Metric 3. Hydrology.

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

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

3c. Maximum water depth. Select one.

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

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

11.0	22.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

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

22.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID: W-MRK-033

Site: Vassell-Green Chapel Rater(s): MRK, KRS Date: 9/14/2023

22.0
subtotal this page

Field ID:

W-MRK-033 PEM

0.0 22.0
max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-3.0 19.0
max 20pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks
☐ 0 Coarse woody debris >15cm (6in)
☐ 0 Standing dead >25cm (10in) dbh
☐ 0 Amphibian 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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

19.0 TOTAL (Max 100 pts)
1 Category

Wetland ID:	W-MRK-033
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0		
	Metric 2. Buffers and surrounding land use	4		
	Metric 3. Hydrology	7		
	Metric 4. Habitat	11		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersions, microtopography	-3		
	TOTAL SCORE	19		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-033

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	*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	*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	*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?	*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	*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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	*Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

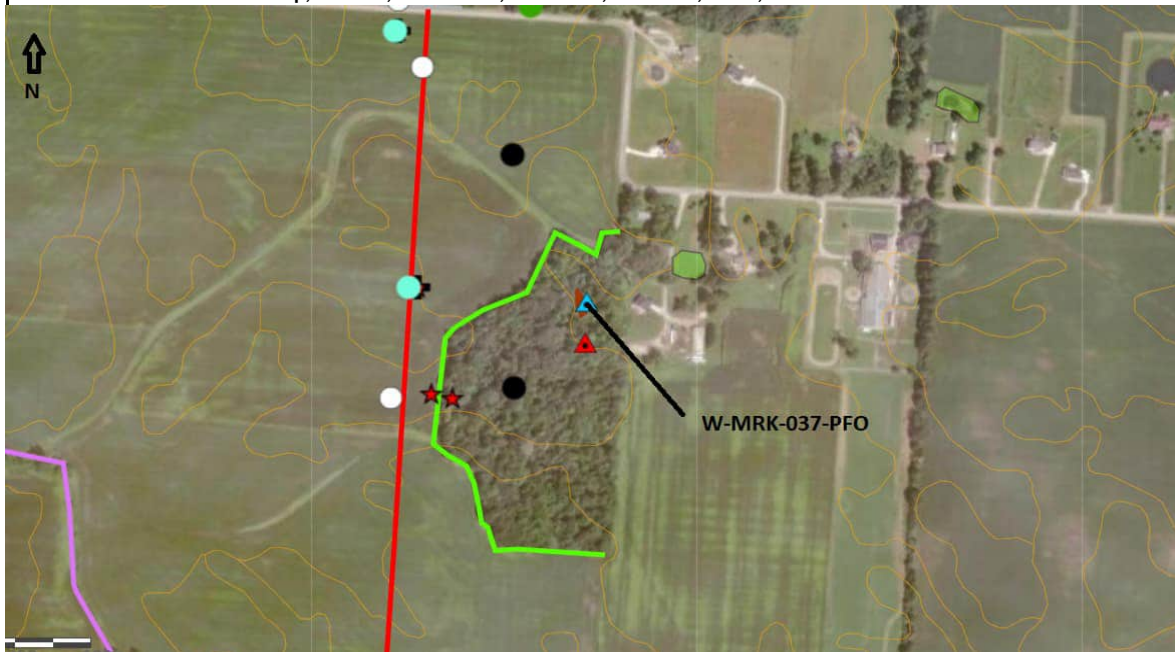
It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual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

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


Background Information

Name:	Matt Kline, Rick Lipinski
Date:	10/18/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	(814) 516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-037
Vegetation Communit(ies):	PFO
HGM Class(es):	Mineral soil flats

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.182489, -82.794527
USGS Quad Name:	Sunbury
County:	Delaware
Township:	Harlem
Section and Subsection:	T3N R16W
Hydrologic Unit Code:	050600011308 - Hoover Reservoir-Big Walnut Creek
Site Visit:	10/18/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-037		
Wetland Size (delineated acres):	0.12	Wetland Size (Estimated total acres):	0.12
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes:			
<p>This PFO wetland is located within a slight depression in a forested habitat. Depression is collecting surface runoff which dissipates into an upland section of the forest and agricultural field to the west. The wetland boundary was identified by dominant hydrophytic vegetation <i>Acer saccharinum</i>.</p>			
Final score:	31	Category:	1 or 2 Gray Zone

Wetland ID:	W-MRK-037
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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

Wetland ID: W-MRK-037

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	*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	*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	*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	*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	*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	*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	*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	*NO Go to Question 8b

Wetland ID: W-MRK-037

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>*NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-037
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Table 1. Characteristic plant species.				
invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicaratum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Wetland ID:	W-MRK-037
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Site:	AEP Vassell-Green Chapel	Rater(s):	Matt Kline, Rick Lipinski	Date:	10/18/2023
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1.0	1.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).**Select one size class and assign score.**

<input type="checkbox"/>	>50 acres (>20.2ha) (6 pts)
<input type="checkbox"/>	25 to <50 acres (10.1 to <20.2ha) (5 pts)
<input type="checkbox"/>	10 to <25 acres (4 to <10.1ha) (4 pts)
<input type="checkbox"/>	3 to <10 acres (1.2 to <4ha) (3 pts)
<input type="checkbox"/>	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
<input checked="" type="checkbox"/>	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
<input type="checkbox"/>	<0.1 acres (0.04ha) (0 pts)

Field ID:**W-MRK-037**

Delineated acres:	0.12
Total acres:	0.12

4.0	5.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.**2a. Calculate average buffer width. Select only one and assign score. Do not double check.**

<input type="checkbox"/>	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
<input type="checkbox"/>	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
<input checked="" type="checkbox"/>	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
<input type="checkbox"/>	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

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

<input type="checkbox"/>	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
<input type="checkbox"/>	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
<input checked="" type="checkbox"/>	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
<input type="checkbox"/>	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

11.0	16.0
max 30 pts.	subtotal

Metric 3. Hydrology.**3a. Sources of Water. Score all that apply.**

<input type="checkbox"/>	High pH groundwater (5)
<input type="checkbox"/>	Other groundwater (3)
<input checked="" type="checkbox"/>	Precipitation (1)
<input type="checkbox"/>	Seasonal/Intermittent surface water (3)
<input type="checkbox"/>	Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select one.

<input type="checkbox"/>	>0.7 (27.6in) (3)
<input type="checkbox"/>	0.4 to 0.7m (15.7 to 27.6in) (2)
<input checked="" type="checkbox"/>	<0.4m (<15.7in) (1)

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

<input type="checkbox"/>	None or none apparent (12)
<input checked="" type="checkbox"/>	Recovered (7)
<input type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

3b. Connectivity. Score all that apply.

<input type="checkbox"/>	100 year floodplain (1)
<input type="checkbox"/>	Between stream/lake and other human use (1)
<input type="checkbox"/>	Part of wetland/upland (e.g. forest), complex (1)
<input checked="" type="checkbox"/>	Part of riparian or upland corridor (1)

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

<input type="checkbox"/>	Semi- to permanently inundated/saturated (4)
<input type="checkbox"/>	Regularly inundated/saturated (3)
<input type="checkbox"/>	Seasonally inundated (2)
<input checked="" type="checkbox"/>	Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

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

11.0	27.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.**4a. Substrate disturbance. Score one or double check and average.**

<input type="checkbox"/>	None or none apparent (4)
<input checked="" type="checkbox"/>	Recovered (3)
<input type="checkbox"/>	Recovering (2)
<input type="checkbox"/>	Recent or no recovery (1)

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

<input type="checkbox"/>	Excellent (7)
<input type="checkbox"/>	Very good (6)
<input type="checkbox"/>	Good (5)
<input type="checkbox"/>	Moderately good (4)
<input type="checkbox"/>	Fair (3)
<input checked="" type="checkbox"/>	Poor to fair (2)
<input type="checkbox"/>	Poor (1)

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

<input type="checkbox"/>	None or none apparent (9)
<input checked="" type="checkbox"/>	Recovered (6)
<input type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

Check all disturbances observed

<input type="checkbox"/>	mowing	<input type="checkbox"/>	shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/>	herbaceous/aquatic bed removal
<input checked="" type="checkbox"/>	clearcutting	<input type="checkbox"/>	sedimentation
<input checked="" 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 type="checkbox"/>	nutrient enrichment

27.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-037
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Site:	AEP Vassell-Green Chapel	Rater(s):	Matt Kline, Rick Lipinski	Date:	10/18/2023
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27.0
subtotal this page

Field ID:
W-MRK-037

0.0	27.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

4.0	31.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- | | |
|--------------------------|-------------|
| <input type="checkbox"/> | Aquatic bed |
| 0 | Emergent |
| 0 | Shrub |
| 1 | Forest |
| <input type="checkbox"/> | Mudflats |
| <input type="checkbox"/> | Open water |
| <input type="checkbox"/> | Other |

6b. horizontal (plan view) Interspersions.

Select only one.

- | | |
|--------------------------|--------------------|
| <input type="checkbox"/> | High (5) |
| <input type="checkbox"/> | Moderately high(4) |
| <input type="checkbox"/> | Moderate (3) |
| <input type="checkbox"/> | Moderately low (2) |
| <input type="checkbox"/> | Low (1) |
| x | None (0) |

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

- | | |
|--------------------------|-----------------------------|
| <input type="checkbox"/> | Extensive >75% cover (-5) |
| <input type="checkbox"/> | Moderate 25-75% cover (-3) |
| <input type="checkbox"/> | Sparse 5-25% cover (-1) |
| <input type="checkbox"/> | Nearly absent <5% cover (0) |
| x | Absent (1) |

6d. Microtopography.

Score all present using 0 to 3 scale.

- | | |
|---|---------------------------------|
| 0 | Vegetated hummocks/tussucks |
| 1 | Coarse woody debris >15cm (6in) |
| 1 | Standing dead >25cm (10in) dbh |
| 0 | 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 1 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 2 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 3 vegetation and is of high quality |

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species

Native spp are dominant component of the vegetation, mod 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 to

A predominance of native species, with nonnative spp high 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 |

31.0	TOTAL (Max 100 pts)
1 or 2 Gray Zone	Category

Wetland ID:	W-MRK-037
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1		
	Metric 2. Buffers and surrounding land use	4		
	Metric 3. Hydrology	11		
	Metric 4. Habitat	11		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersed, microtopography	4		
	TOTAL SCORE	31		Category based on score breakpoints 1 or 2 Gray Zone

Complete Wetland Categorization Worksheet.

Wetland ID: W-MRK-037

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	*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	*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	*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?	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 within 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	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	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	Category 1	*Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

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

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


Background Information

Name:	MRK, KRS
Date:	12/6/2023
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	(814) 516-1130
e-mail address:	matthew.kline@aecom.com
Name of Wetland:	W-MRK-038
Vegetation Communit(ies):	PFO
HGM Class(es):	Mineral soil flats

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.174205, -82.772836
USGS Quad Name:	Sunbury
County:	Delaware
Township:	3N
Section and Subsection:	16W
Hydrologic Unit Code:	050600011307 - Duncan Run
Site Visit:	12/6/2023
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-MRK-038		
Wetland Size (delineated acres):	0.78	Wetland Size (Estimated total acres):	0.78
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes:			
This PFO wetland is located within a forested depression that is collecting surface runoff. Water draining from an agricultural field flows west into the forest and dissipates into another agricultural field to the west.			
Final score:	27	Category:	1

Wetland ID:	W-MRK-038
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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

Wetland ID: W-MRK-038

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	*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	*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	*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	*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	*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	*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	*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 aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	*NO Go to Question 8b

Wetland ID: W-MRK-038

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>*NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-MRK-038
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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.

Wetland ID:	W-MRK-038
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	12/6/2023
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2.0	2.0
max 6 pts	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

<input type="checkbox"/>	>50 acres (>20.2ha) (6 pts)
<input type="checkbox"/>	25 to <50 acres (10.1 to <20.2ha) (5 pts)
<input type="checkbox"/>	10 to <25 acres (4 to <10.1ha) (4 pts)
<input type="checkbox"/>	3 to <10 acres (1.2 to <4ha) (3 pts)
<input checked="" type="checkbox"/>	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
<input type="checkbox"/>	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
<input type="checkbox"/>	<0.1 acres (0.04ha) (0 pts)

Field ID:

W-MRK-038 PFO

Delineated acres:	0.78
Total acres:	0.78

4.0	6.0
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

<input type="checkbox"/>	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
<input type="checkbox"/>	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
<input checked="" type="checkbox"/>	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
<input type="checkbox"/>	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

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

<input type="checkbox"/>	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
<input type="checkbox"/>	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
<input checked="" type="checkbox"/>	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
<input type="checkbox"/>	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7.0	13.0
max 30 pts.	subtotal

Metric 3. Hydrology.

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

<input type="checkbox"/>	High pH groundwater (5)
<input type="checkbox"/>	Other groundwater (3)
<input checked="" type="checkbox"/>	Precipitation (1)
<input type="checkbox"/>	Seasonal/Intermittent surface water (3)
<input type="checkbox"/>	Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select one.

<input type="checkbox"/>	>0.7 (27.6in) (3)
<input type="checkbox"/>	0.4 to 0.7m (15.7 to 27.6in) (2)
<input checked="" type="checkbox"/>	<0.4m (<15.7in) (1)

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

<input type="checkbox"/>	None or none apparent (12)
<input type="checkbox"/>	Recovered (7)
<input checked="" type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

3b. Connectivity. Score all that apply.

<input type="checkbox"/>	100 year floodplain (1)
<input type="checkbox"/>	Between stream/lake and other human use (1)
<input type="checkbox"/>	Part of wetland/upland (e.g. forest), complex (1)
<input checked="" type="checkbox"/>	Part of riparian or upland corridor (1)

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

<input type="checkbox"/>	Semi- to permanently inundated/saturated (4)
<input type="checkbox"/>	Regularly inundated/saturated (3)
<input type="checkbox"/>	Seasonally inundated (2)
<input checked="" type="checkbox"/>	Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

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

11.0	24.0
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

<input type="checkbox"/>	None or none apparent (4)
<input checked="" type="checkbox"/>	Recovered (3)
<input type="checkbox"/>	Recovering (2)
<input type="checkbox"/>	Recent or no recovery (1)

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

<input type="checkbox"/>	Excellent (7)
<input type="checkbox"/>	Very good (6)
<input type="checkbox"/>	Good (5)
<input type="checkbox"/>	Moderately good (4)
<input type="checkbox"/>	Fair (3)
<input checked="" type="checkbox"/>	Poor to fair (2)
<input type="checkbox"/>	Poor (1)

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

<input type="checkbox"/>	None or none apparent (9)
<input checked="" type="checkbox"/>	Recovered (6)
<input type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

Check all disturbances observed

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

24.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-MRK-038
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Site:	Vassell-Green Chapel	Rater(s):	MRK, KRS	Date:	12/6/2023
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24.0
subtotal this page

Field ID:
W-MRK-038 PFO

0.0	24.0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

3.0	27.0
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks
- ☒ 1 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod 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 to
A predominance of native species, with nonnative spp high 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

27.0	TOTAL (Max 100 pts)
1	Category

Wetland ID:	W-MRK-038
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ORAM Summary Worksheet

		Circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES *NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES *NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES *NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES *NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES *NO	If yes, Category 1.
	Question 6. Bogs	YES *NO	If yes, Category 3.
	Question 7. Fens	YES *NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES *NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES *NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES *NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES *NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES *NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	11	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	27	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID:	W-MRK-038
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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	*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	*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	*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?	*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	*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	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	*Category 1	Category 2	Category 3	
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End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Ohio EPA, Division of Surface Water Final:
February 1, 2001

Instructions

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

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

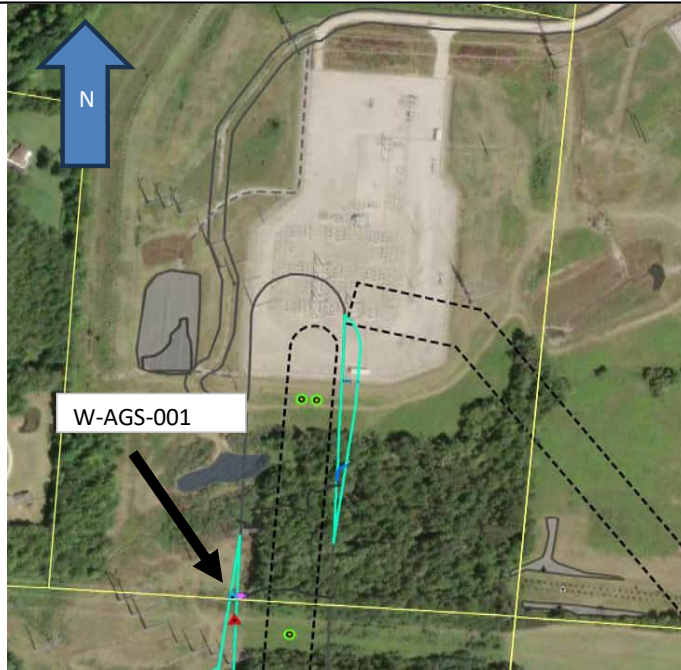
It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual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

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


Background Information

Name:	AGS, TJK
Date:	1/28/2025
Affiliation:	AECOM
Address:	707 Grant Street, 5th Floor, Pittsburgh, PA 15219
Phone Number:	412-523-2423
e-mail address:	austin.sige@aecom.com
Name of Wetland:	W-AGS-001
Vegetation Communit(ies):	PEM
HGM Class(es):	Depressional/Riverine

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate:	40.225168, -82.854171
USGS Quad Name:	Sunbury
County:	Delaware
Township:	T4N
Section and Subsection:	N/A
Hydrologic Unit Code:	HUC12 050600011306 Prairie Run-Big Walnut Creek
Site Visit:	1/28/2025
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	See Figure 2
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-AGS-001		
Wetland Size (delineated acres):	0.02	Wetland Size (Estimated total acres):	0.07
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.			
			
Comments, Narrative Discussion, Justification of Category Changes:			
<p>W-AGS-001 is a PEM, abutting wetland situated in a transmission line ROW. This wetland receives hydrology from precipitation and S-MRK-021. The vegetation is dominated by FACW and OBL plants. The vegetation and soil are disturbed from ROW-related activity.</p>			
Final score:	21.5	Category:	1

Wetland ID:	W-AGS-001
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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.	X	
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.	X	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
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.		X

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	*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	*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	*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	*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	*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	*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	*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 aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	*NO Go to Question 8b

Wetland ID: W-AGS-001

<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a</p>	<p>*NO Go to Question 9a</p>
<p>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?</p>	<p>YES Go to Question 9b</p>	<p>*NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 9c</p>
<p>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.</p>	<p>YES Go to Question 9d</p>	<p>NO Go to Question 10</p>
<p>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?</p>	<p>YES Wetland is a Category 3 wetland Go to Question 10</p>	<p>NO Go to Question 9e</p>
<p>9e Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?</p>	<p>YES Wetland should be evaluated for possible Category 3 status Go to Question 10</p>	<p>NO Go to Question 10</p>
<p>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.</p>	<p>YES Wetland is a Category 3 wetland. Go to Question 11</p>	<p>*NO Go to Question 11</p>
<p>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.).</p>	<p>YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating</p>	<p>*NO Complete Quantitative Rating</p>

Wetland ID:	W-AGS-001
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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.

Wetland ID:	W-AGS-001
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Site:	Vassel Green Chapel Curley	Rater(s):	AGS, TJK	Date:	1/28/2025
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0.0	0.0	Metric 1. Wetland Area (size).	Field ID:
max 6 pts	subtotal	Select one size class and assign score.	W-AGS-001 PEM
		<input type="checkbox"/> >50 acres (>20.2ha) (6 pts)	
		<input type="checkbox"/> 25 to <50 acres (10.1 to <20.2ha) (5 pts)	
		<input type="checkbox"/> 10 to <25 acres (4 to <10.1ha) (4 pts)	
		<input type="checkbox"/> 3 to <10 acres (1.2 to <4ha) (3 pts)	
		<input type="checkbox"/> 0.3 to <3 acres (0.12 to <1.2ha) (2pts)	
		<input type="checkbox"/> 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	
		<input checked="" type="checkbox"/> <0.1 acres (0.04ha) (0 pts)	
			Delineated acres: 0.02
			Total acres: 0.07

3.0	3.0	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.
		<input type="checkbox"/> WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
		<input type="checkbox"/> MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
		<input type="checkbox"/> NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
		<input checked="" type="checkbox"/> VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
		2b. Intensity of surrounding land use. Select one or double check and average.
		<input type="checkbox"/> VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
		<input type="checkbox"/> LOW. Old field (>10 years), shrubland, young second growth forest. (5)
		<input checked="" type="checkbox"/> MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
		<input type="checkbox"/> HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9.0	12.0	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply.
		<input type="checkbox"/> High pH groundwater (5)
		<input type="checkbox"/> Other groundwater (3)
		<input checked="" type="checkbox"/> Precipitation (1)
		<input checked="" type="checkbox"/> Seasonal/Intermittent surface water (3)
		<input type="checkbox"/> Perennial surface water (lake or stream) (5)
		3c. Maximum water depth. Select one.
		<input type="checkbox"/> >0.7 (27.6in) (3)
		<input type="checkbox"/> 0.4 to 0.7m (15.7 to 27.6in) (2)
		<input checked="" type="checkbox"/> <0.4m (<15.7in) (1)
		3e. Modifications to natural hydrologic regime. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (12)
		<input type="checkbox"/> Recovered (7)
		<input checked="" type="checkbox"/> Recovering (3)
		<input checked="" type="checkbox"/> Recent or no recovery (1)
		3b. Connectivity. Score all that apply.
		<input type="checkbox"/> 100 year floodplain (1)
		<input type="checkbox"/> Between stream/lake and other human use (1)
		<input type="checkbox"/> Part of wetland/upland (e.g. forest), complex (1)
		<input checked="" type="checkbox"/> Part of riparian or upland corridor (1)
		3d. Duration inundation/saturation. Score one or dbl check.
		<input type="checkbox"/> Semi- to permanently inundated/saturated (4)
		<input type="checkbox"/> Regularly inundated/saturated (3)
		<input type="checkbox"/> Seasonally inundated (2)
		<input checked="" type="checkbox"/> Seasonally saturated in upper 30cm (12in) (1)
		Check all disturbances observed
		<input type="checkbox"/> ditch
		<input type="checkbox"/> tile
		<input type="checkbox"/> dike
		<input type="checkbox"/> weir
		<input type="checkbox"/> stormwater input
		<input type="checkbox"/> point source (nonstormwater)
		<input type="checkbox"/> filling/grading
		<input checked="" type="checkbox"/> road bed/RR track
		<input type="checkbox"/> dredging
		<input checked="" type="checkbox"/> Other: ROW work

5.5	17.5	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (4)
		<input type="checkbox"/> Recovered (3)
		<input checked="" type="checkbox"/> Recovering (2)
		<input checked="" type="checkbox"/> Recent or no recovery (1)
		4b. Habitat development. Select only one and assign score.
		<input type="checkbox"/> Excellent (7)
		<input type="checkbox"/> Very good (6)
		<input type="checkbox"/> Good (5)
		<input type="checkbox"/> Moderately good (4)
		<input type="checkbox"/> Fair (3)
		<input checked="" type="checkbox"/> Poor to fair (2)
		<input type="checkbox"/> Poor (1)
		4c. Habitat alteration. Score one or double check and average.
		<input type="checkbox"/> None or none apparent (9)
		<input type="checkbox"/> Recovered (6)
		<input checked="" type="checkbox"/> Recovering (3)
		<input checked="" type="checkbox"/> Recent or no recovery (1)
		Check all disturbances observed
		<input checked="" type="checkbox"/> mowing
		<input type="checkbox"/> grazing
		<input checked="" type="checkbox"/> clearcutting
		<input type="checkbox"/> selective cutting
		<input type="checkbox"/> woody debris removal
		<input type="checkbox"/> toxic pollutants
		<input type="checkbox"/> shrub/sapling removal
		<input type="checkbox"/> herbaceous/aquatic bed removal
		<input type="checkbox"/> sedimentation
		<input type="checkbox"/> dredging
		<input type="checkbox"/> farming
		<input type="checkbox"/> nutrient enrichment

17.5
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ID:	W-AGS-001
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Site:	Vassel Green Chapel Curley	Rater(s):	AGS, TJK	Date:	1/28/2025
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17.5
subtotal this page

Field ID:
W-AGS-001 PEM

0.0	17.5
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

4.0	21.5
max 20pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersions.

Select only one.

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

6c. Coverage of invasive plants. Refer

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)
- ☒ x Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod 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 to
A predominance of native species, with nonnative spp high 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

21.5	TOTAL (Max 100 pts)
1	Category

Wetland ID:	W-AGS-001
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ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	0		
	Metric 2. Buffers and surrounding land use	3		
	Metric 3. Hydrology	9		
	Metric 4. Habitat	5.5		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersion, microtopography	4		
	TOTAL SCORE	21.5		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland ID:	W-AGS-001
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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	*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	*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	*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?	*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	*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	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	*Category 1	Category 2	Category 3	
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End of Ohio Rapid Assessment Method for Wetlands.

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-004	
Date: June 15, 2023	
Description: PFO Facing North	

W-MRK-004	
Date: June 15, 2023	
Description: PFO Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-004	
Date: June 15, 2023	
Description: PFO Facing East	

W-MRK-004	
Date: June 15, 2023	
Description: PFO Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-004	
Date: June 15, 2023	
Description: PFO Facing Soil	

W-MRK-009	
Date: June 22, 2023	
Description: PFO Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-009	
Date: June 22, 2023	
Description: PFO Facing South	

W-MRK-009	
Date: June 22, 2023	
Description: PFO Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-009	
Date: June 22, 2023	
Description: PFO Facing West	

W-MRK-009	
Date: June 22, 2023	
Description: PFO Facing Soil	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-010	
Date: June 22, 2023	
Description: PEM Facing North	

W-MRK-010	
Date: June 22, 2023	
Description: PEM Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-010	
Date: June 22, 2023	
Description: PEM Facing East	

W-MRK-010	
Date: June 22, 2023	
Description: PEM Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-010	
Date: June 22, 2023	
Description: PEM Facing Soil	

W-MRK-017	
Date: June 27, 2023	
Description: PFO Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-017	
Date: June 27, 2023	
Description: PFO Facing South	

W-MRK-017	
Date: June 27, 2023	
Description: PFO Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-017	
Date: June 27, 2023	
Description: PFO Facing West	

W-MRK-017	
Date: June 27, 2023	
Description: PFO Facing Soil	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-018	
Date: June 27, 2023	
Description: PFO Facing North	

W-MRK-018	
Date: June 27, 2023	
Description: PFO Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-018	
Date: June 27, 2023	
Description: PFO Facing East	

W-MRK-018	
Date: June 27, 2023	
Description: PFO Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-018	
Date: June 27, 2023	
Description: PFO Facing Soil	

W-MRK-019	
Date: June 27, 2023	
Description: PEM Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-019	
Date: June 27, 2023	
Description: PEM Facing South	

W-MRK-019	
Date: June 27, 2023	
Description: PEM Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-019	
Date: June 27, 2023	
Description: PEM Facing West	

W-MRK-019	
Date: June 27, 2023	
Description: PEM Facing Soil	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-021	
Date: January 29, 2025	
Description: PFO Facing North	

W-MRK-021	
Date: January 29, 2025	
Description: PFO Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-021	
Date: January 29, 2025	
Description: PFO Facing East	

W-MRK-021	
Date: January 29, 2025	
Description: PFO Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-021	
Date: January 29, 2025	
Description: PFO Facing Soil	

W-MRK-021	
Date: January 29, 2025	
Description: PEM Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-021	
Date: January 29, 2025	
Description: PEM Facing South	

W-MRK-021	
Date: January 29, 2025	
Description: PEM Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-021	
Date: January 29, 2025	
Description: PEM Facing West	

W-MRK-021	
Date: January 29, 2025	
Description: PEM Facing Soil	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-023	
Date: September 11, 2023	
Description: PEM Facing North	

W-MRK-023	
Date: September 11, 2023	
Description: PEM Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-023	
Date: September 11, 2023	
Description: PEM Facing East	

W-MRK-023	
Date: September 11, 2023	
Description: PEM Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-023	
Date: September 11, 2023	
Description: PEM Facing Soil	

W-MRK-024	
Date: September 12, 2023	
Description: PSS Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-024	
Date: September 12, 2023	
Description: PSS Facing South	

W-MRK-024	
Date: September 12, 2023	
Description: PSS Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-024	
Date: September 12, 2023	
Description: PSS Facing West	

W-MRK-024	
Date: September 12, 2023	
Description: PSS Facing Soil	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-025	
Date: September 12 2023	
Description: PFO Facing North	

W-MRK-025	
Date: September 12, 2023	
Description: PFO Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-025	
Date: September 12, 2023	
Description: PFO Facing East	

W-MRK-025	
Date: September 12, 2023	
Description: PFO Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-025	
Date: September 12, 2023	
Description: PFO Facing Soil	

W-MRK-027	
Date: September 13, 2023	
Description: PEM Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-027	
Date: September 13, 2023	
Description: PEM Facing South	

W-MRK-027	
Date: September 13, 2023	
Description: PEM Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-027	
Date: September 13, 2023	
Description: PEM Facing West	

W-MRK-027	
Date: September 13, 2023	
Description: PEM Facing Soil	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-028	
Date: September 13, 2023	
Description: PFO Facing North	

W-MRK-028	
Date: September 13, 2023	
Description: PFO Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-028	
Date: September 13, 2023	
Description: PFO Facing East	

W-MRK-028	
Date: September 13, 2023	
Description: PFO Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-028	 A photograph showing a soil profile. The soil is dark brown and appears moist. There are some small green plants growing from the soil. A white rectangular marker is placed on the right side of the soil profile for scale.
Date: September 13, 2023	
Description: PFO Facing Soil	

W-MRK-029	 A photograph of a tree trunk in a forest. The tree trunk is thick and has a rough, textured bark. It is surrounded by other trees and foliage. The ground is covered with fallen leaves and branches.
Date: September 13, 2023	
Description: PFO Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-029	
Date: September 13, 2023	
Description: PFO Facing South	


W-MRK-029	
Date: September 13, 2023	
Description: PFO Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-029	
Date: September 13, 2023	
Description: PFO Facing West	

W-MRK-029	
Date: September 13, 2023	
Description: PFO Facing Soil	


Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-030	
Date: September 13, 2023	
Description: PEM Facing North	

W-MRK-030	
Date: September 13, 2023	
Description: PEM Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-030	
Date: September 13, 2023	
Description: PEM Facing East	

W-MRK-030	
Date: September 13, 2023	
Description: PEM Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-030	
Date: September 13, 2023	
Description: PEM Facing Soil	

W-MRK-030	
Date: September 13, 2023	
Description: PFO Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-030	
Date: September 13, 2023	
Description: PFO Facing South	

W-MRK-030	
Date: September 13, 2023	
Description: PFO Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-030	
Date: September 13, 2023	
Description: PFO Facing West	

W-MRK-030	
Date: September 13, 2023	
Description: PFO Facing Soil	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-031	
Date: September 14, 2023	
Description: PFO Facing North	

W-MRK-031	
Date: September 14, 2023	
Description: PFO Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-031	
Date: September 14, 2023	
Description: PFO Facing East	

W-MRK-031	
Date: September 14, 2023	
Description: PFO Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-031	
Date: September 11, 2023	
Description: PEM Facing Soil	

W-MRK-032	
Date: September 14, 2023	
Description: PEM Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-032	
Date: September 14, 2023	
Description: PEM Facing South	

W-MRK-032	
Date: September 14, 2023	
Description: PEM Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-032	
Date: September 14, 2023	
Description: PEM Facing West	

W-MRK-032	
Date: September 14, 2023	
Description: PEM Facing Soil	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-033	
Date: September 14, 2023	
Description: PEM Facing North	

W-MRK-033	
Date: September 14 2023	
Description: PEM Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-033	
Date: September 14, 2023	
Description: PEM Facing East	

W-MRK-033	
Date: September 14, 2023	
Description: PEM Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-033	
Date: September 14, 2023	
Description: PEM Facing Soil	

W-MRK-037	
Date: October 18, 2023	
Description: PFO Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-037	
Date: October 18, 2023	
Description: PFO Facing South	

W-MRK-037	
Date: October 18, 2023	
Description: PFO Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-037	
Date: October 18, 2023	
Description: PFO Facing West	

W-MRK-037	
Date: October 18, 2023	
Description: PFO Facing Soil	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-038	
Date: December 06, 2023	
Description: PFO Facing North	

W-MRK-038	
Date: December 06, 2023	
Description: PFO Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-038	
Date: December 06, 2023	
Description: PFO Facing East	

W-MRK-038	
Date: December 06, 2023	
Description: PFO Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-MRK-038	
Date: December 06, 2023	
Description: PFO Facing Soil	

W-AGS-001	
Date: January 28, 2025	
Description: PEM Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-AGS-001	
Date: January 28, 2025	
Description: PEM Facing South	

W-AGS-001	
Date: January 28, 2025	
Description: PEM Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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W-AGS-001	
Date: January 28, 2025	
Description: PEM Facing West	

W-AGS-001	
Date: January 28, 2025	
Description: PEM Facing Soil	

APPENDIX B**OEPA Stream Data Forms and Photographic Record**



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

44

Stream & Location: UNT to Duncan Run

RM: _ _ _ Date: 6-15-23

AEP Vassell-Green Chapel

Scorers Full Name & Affiliation: MRK, AJH/AECOM

River Code: - - - STORET #: - - - Lat./ Long.: 40.152913, -82.748472

Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES POOL RIFFLE

- ☐ BLDR /SLABS [10]
☐ BOULDER [9]
☐ COBBLE [8]
☐ GRAVEL [7]
☐ SAND [6]
☐ BEDROCK [5]

OTHER TYPES POOL RIFFLE

- ☐ HARDPAN [4]
☒ DETRITUS [3] 40
☐ MUCK [2]
☒ SILT [2] 60
☐ ARTIFICIAL [0]

(Score natural substrates; ignore sludge from point-sources)

ORIGIN

- ☐ LIMESTONE [1]
☐ TILLS [1]
☒ WETLANDS [0]
☐ HARDPAN [0]
☐ SANDSTONE [0]
☐ RIP/RAP [0]
☐ LACUSTURINE [0]
☐ SHALE [-1]
☐ COAL FINES [-2]

QUALITY

- ☒ HEAVY [-2]
☐ MODERATE [-1]
☐ NORMAL [0]
☐ FREE [1]
☒ EXTENSIVE [-2]
☐ MODERATE [-1]
☐ NORMAL [0]
☐ NONE [1]

SILT

EMBEDDEDNESS

Substrate

1

Maximum 20

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

Heavy siltation

2] INSTREAM COVER

Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

- ☐ UNDERCUT BANKS [1]
 OVERHANGING VEGETATION [1]
 SHALLOWS (IN SLOW WATER) [1]
 ROOTMATS [1]

- POOLS > 70cm [2]
 ROOTWADS [1]
 BOULDERS [1]

- OXBOWS, BACKWATERS [1]
 AQUATIC MACROPHYTES [1]
 LOGS OR WOODY DEBRIS [1]

- ☐ EXTENSIVE >75% [11]
☒ MODERATE 25-75% [7]
☐ SPARSE 5-<25% [3]
☐ NEARLY ABSENT <5% [1]

Comments

Cover
Maximum
20

11

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY

- ☐ HIGH [4]
☒ MODERATE [3]
☐ LOW [2]
☐ NONE [1]

DEVELOPMENT

- ☐ EXCELLENT [7]
☒ GOOD [5]
☐ FAIR [3]
☐ POOR [1]

CHANNELIZATION

- ☐ NONE [6]
☒ RECOVERED [4]
☐ RECOVERING [3]
☐ RECENT OR NO RECOVERY [1]

STABILITY

- ☐ HIGH [3]
☒ MODERATE [2]
☐ LOW [1]

Comments

Channel
Maximum
20

14

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION

- NONE / LITTLE [3]
 MODERATE [2]
 HEAVY / SEVERE [1]

RIPARIAN WIDTH

- WIDE > 50m [4]
 MODERATE 10-50m [3]
 NARROW 5-10m [2]
 VERY NARROW < 5m [1]
 NONE [0]

FLOOD PLAIN QUALITY

- FOREST, SWAMP [3]
 SHRUB OR OLD FIELD [2]
 RESIDENTIAL, PARK, NEW FIELD [1]
 FENCED PASTURE [1]
 OPEN PASTURE, ROWCROP [0]

- CONSERVATION TILLAGE [1]
 URBAN OR INDUSTRIAL [0]
 MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Agricultural fields north and south of forested riparian area.

Riparian
Maximum
10

3

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check ONE (ONLY!)

- ☐ > 1m [6]
☐ 0.7-<1m [4]
☐ 0.4-<0.7m [2]
☒ 0.2-<0.4m [1]
☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

- ☐ POOL WIDTH > RIFFLE WIDTH [2]
☒ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

- ☐ TORRENTIAL [-1] ☒ SLOW [1]
☐ VERY FAST [1] ☐ INTERSTITIAL [-1]
☐ FAST [1] ☐ INTERMITTENT [-2]
☐ MODERATE [1] ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential

Primary Contact

Secondary Contact

(circle one and comment on back)

Comments

Pool /
Current
Maximum
12

3

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH

- ☒ BEST AREAS > 10cm [2]
☐ BEST AREAS 5-10cm [1]
☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH

- ☐ MAXIMUM > 50cm [2]
☒ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE

- ☐ STABLE (e.g., Cobble, Boulder) [2]
☐ MOD. STABLE (e.g., Large Gravel) [1]
☒ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS

- ☐ NONE [2]
☐ LOW [1]
☐ MODERATE [0]
☒ EXTENSIVE [-1]

Comments

Riffle /
Run
Maximum
8

2

6] GRADIENT (15.2 ft/mi)
DRAINAGE AREA (1.34 mi²)

- ☐ VERY LOW - LOW [2-4]
☒ MODERATE [6-10]
☐ HIGH - VERY HIGH [10-6]

%POOL:

%GLIDE:

%RUN:

%RIFFLE:

Gradient
Maximum
10

10

AJ SAMPLED REACH

Check ALL that apply

METHOD	STAGE
<input type="checkbox"/> BOAT	1st -sample pass- 2nd
<input type="checkbox"/> WADE	<input type="checkbox"/> HIGH <input type="checkbox"/>
<input type="checkbox"/> L. LINE	<input type="checkbox"/> UP <input type="checkbox"/>
<input checked="" type="checkbox"/> OTHER	<input checked="" type="checkbox"/> NORMAL <input type="checkbox"/>
	<input type="checkbox"/> LOW <input type="checkbox"/>
	<input type="checkbox"/> DRY <input type="checkbox"/>

DISTANCE

☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☐ OTHER

200 feet

CANOPY

☐ > 85%- OPEN
☐ 55%-<85%
☐ 30%-<55%
☒ 10%-<30%
☐ <10%- CLOSED

CLARITY

1st -sample pass- 2nd

☒ < 20 cm ☐

☐ 20-<40 cm ☐

☐ 40-70 cm ☐

☐ > 70 cm/ CTB ☐

☐ SECCHI DEPTH ☐

1st _____ cm

2nd _____ cm

CJ REC

BJ AESTHETIC

☐ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☐ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☐ OIL SHEEN
☒ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSOs/SSOs/OUTFALLS

ION AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

DJ MAINTENANCE

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMoured / SLUMPS
ISLANDS / SCoured
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H₂O / TILE / H₂O TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

\bar{x} width 9'

\bar{x} depth

max. depth 12"

\bar{x} bankfull width 16'

bankfull \bar{x} depth 6'

W/D ratio

bankfull max. depth

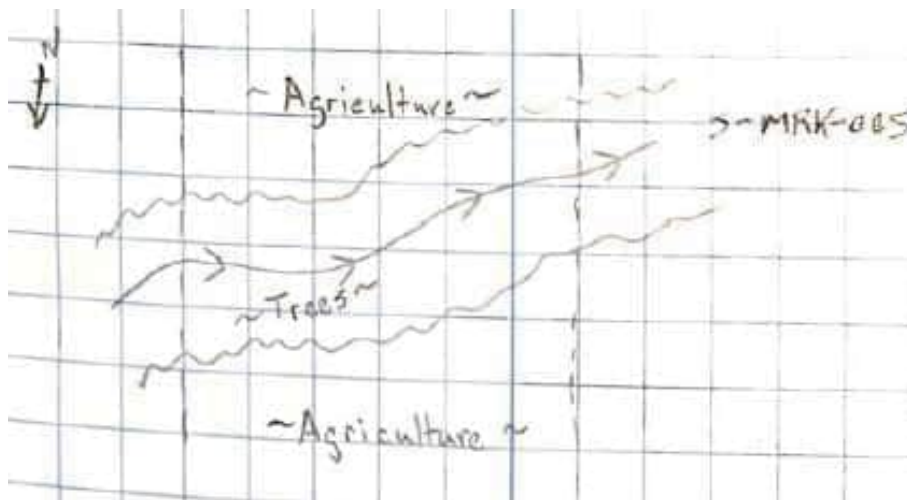
floodprone x^2 width

entrench. ratio

Le Tree:

Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

Stream Drawing:





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

47

SITE NAME/LOCATION **Vassell-Green Chapel**

SITE NUMBER **NA** RIVER BASIN **NA** DRAINAGE AREA (mi²) **0.18**

LENGTH OF STREAM REACH (ft) **250** LAT. **40.12305** LONG. **-82.76132** RIVER CODE **NA** RIVER MILE **NA**

DATE **06/21/23** SCORER **MRK, RBL** COMMENTS

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

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS: **Channelized within an agricultural field**

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> SILT [3 pt]	<input type="text" value="65"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="0"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="10"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="25"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

0

(A)

Substrate Percentage Check

100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

9

TOTAL NUMBER OF SUBSTRATE TYPES:

3

HHEI Metric Points

Substrate Max = 40

12

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches):

3.00

Pool Depth Max = 30

15

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH

(Feet):

7.00

Bankfull Width Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Open Pasture, Row Crop
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS **Bordered by agricultural fields to the north and south**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/>	Stream Flowing	<input type="checkbox"/>	Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/>	Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/>	Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/>	None	<input type="checkbox"/>	1.0	<input type="checkbox"/>	2.0	<input type="checkbox"/>	3.0
<input checked="" type="checkbox"/>	0.5	<input type="checkbox"/>	1.5	<input type="checkbox"/>	2.5	<input type="checkbox"/>	>3

STREAM GRADIENT ESTIMATE

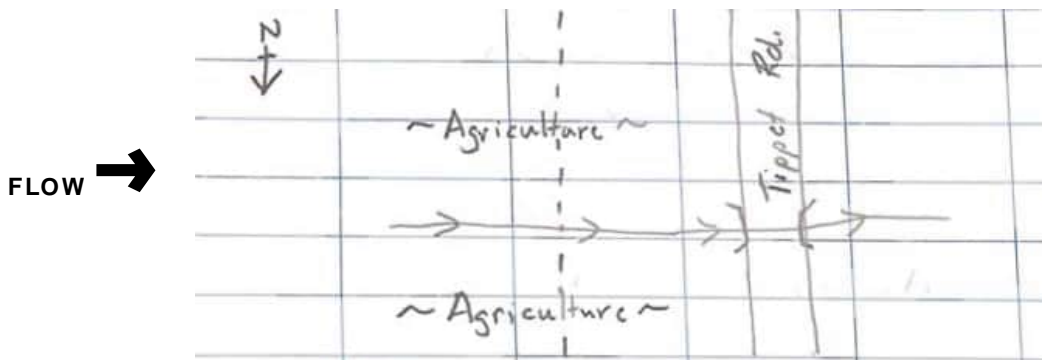
☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name:	Headwaters Blacklick Creek 050600011503	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **Jersey** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Licking** Township / City: **Jersey****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **06/20/23** Quantity: **0.10**
Photograph Information: **Upstream, downstream, substrate**
Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **100** Overall Stability of BOTH Stream Banks (check one):
Stable ☐ Moderately Stable ☒ Unstable ☐
Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **Agricultural runoff****BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ Y Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Comments Regarding Biology:
Frogs observed**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

42

Stream & Location: UNT to Big Walnut Creek

RM: _ _ _ Date: 6-22-23

AEP Vassell-Green Chapel

Scorers Full Name & Affiliation: MRK, RBL, AECOM

River Code: - - - STORET #: - - - Lat./ Long.: 40.202097, -82.823271

Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate 8 Maximum 20	
<input type="checkbox"/>	BLDR /SLABS [10]			<input type="checkbox"/>	HARDPAN [4]			<input type="checkbox"/>	LIMESTONE [1]	<input type="checkbox"/>	HEAVY [-2]		SILT EMBEDDEDNESS
<input type="checkbox"/>	BOULDER [9]			<input type="checkbox"/>	DETRITUS [3]			<input type="checkbox"/>	TILLS [1]	<input checked="" type="checkbox"/>	MODERATE [-1]		
<input checked="" type="checkbox"/>	COBBLE [8]	25	40	<input type="checkbox"/>	MUCK [2]			<input checked="" type="checkbox"/>	WETLANDS [0]	<input type="checkbox"/>	NORMAL [0]		
<input type="checkbox"/>	GRAVEL [7]	10	40	<input checked="" type="checkbox"/>	SILT [2]	65	20	<input type="checkbox"/>	HARDPAN [0]	<input type="checkbox"/>	FREE [1]		
<input type="checkbox"/>	SAND [6]			<input type="checkbox"/>	ARTIFICIAL [0]			<input type="checkbox"/>	SANDSTONE [0]	<input checked="" type="checkbox"/>	EXTENSIVE [-2]		
<input type="checkbox"/>	BEDROCK [5]							<input type="checkbox"/>	RIP/RAP [0]	<input checked="" type="checkbox"/>	MODERATE [-1]		
(Score natural substrates; ignore sludge from point-sources)								<input type="checkbox"/>	LACUSTURINE [0]	<input type="checkbox"/>	NORMAL [0]		
NUMBER OF BEST TYPES: <input type="checkbox"/> 4 or more [2] <input checked="" type="checkbox"/> 3 or less [0]								<input type="checkbox"/>	SHALE [-1]	<input type="checkbox"/>	NONE [1]		
Comments								<input type="checkbox"/>	COAL FINES [-2]				

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]	<input type="checkbox"/> EXTENSIVE >75% [11]
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> AQUATIC MACROPHYTES [1]	<input type="checkbox"/> MODERATE 25-75% [7]
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]
<input type="checkbox"/> ROOTMATS [1]			<input type="checkbox"/> NEARLY ABSENT <5% [1]
Comments			Cover Maximum 20 6

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	Channel Maximum 20 13
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]	
<input type="checkbox"/> MODERATE [3]	<input checked="" type="checkbox"/> GOOD [5]	<input checked="" type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]	
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]	
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]		
Comments				

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		Riparian Maximum 10 3
<input type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]			
<input checked="" type="checkbox"/> MODERATE [2]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]			
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> MINING / CONSTRUCTION [0]			
	<input checked="" type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]				
	<input type="checkbox"/> NONE [0]	<input checked="" type="checkbox"/> OPEN PASTURE, ROWCROP [0]				
Comments				Indicate predominant land use(s) past 100m riparian.		

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply	
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	Pool / Current Maximum 12 2
<input type="checkbox"/> 0.7-<1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	
<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [0]	<input type="checkbox"/> FAST [1]	
<input type="checkbox"/> 0.2-<0.4m [1]		<input type="checkbox"/> MODERATE [1]	
<input checked="" type="checkbox"/> < 0.2m [0]		<input type="checkbox"/> INTERSTITIAL [-1]	
		<input type="checkbox"/> INTERMITTENT [-2]	
Comments			Indicate for reach - pools and riffles.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS	Riffle / Run Maximum 8 2
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]	
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]	
<input checked="" type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]	
			<input type="checkbox"/> EXTENSIVE [-1]	
Comments				

6] GRADIENT (12.3 ft/mi) ☐ VERY LOW - LOW [2-4] ☒ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]DRAINAGE AREA (1.57 mi²)%POOL: %GLIDE:
%RUN: 90 %RIFFLE: 10Gradient
Maximum 10
8

AJ SAMPLED REACH

Check ALL that apply

METHOD	STAGE
<input type="checkbox"/> BOAT	1st -sample pass- 2nd
<input type="checkbox"/> WADE	<input type="checkbox"/> HIGH <input type="checkbox"/>
<input type="checkbox"/> L. LINE	<input type="checkbox"/> UP <input type="checkbox"/>
<input checked="" type="checkbox"/> OTHER	<input type="checkbox"/> NORMAL <input type="checkbox"/>
	<input checked="" type="checkbox"/> LOW <input type="checkbox"/>
	<input type="checkbox"/> DRY <input type="checkbox"/>

DISTANCE

☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☐ OTHER

200 feet

CLARITY

1st -sample pass- 2nd	
<input type="checkbox"/> < 20 cm	<input type="checkbox"/>
<input type="checkbox"/> 20-40 cm	<input type="checkbox"/>
<input type="checkbox"/> 40-70 cm	<input type="checkbox"/>
<input checked="" type="checkbox"/> > 70 cm/ CTB	<input type="checkbox"/>
<input type="checkbox"/> SECCHI DEPTH	<input type="checkbox"/>

CANOPY

☐ > 85%- OPEN
☐ 55%-<85%
☒ 30%-<55%
☐ 10%-<30%
☐ <10%- CLOSED

1st	cm
pass	
2nd	cm

CJ REC**BJ AESTHETIC**

☐ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☐ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☐ OIL SHEEN
☐ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSOs/SSOs/OUTFALLS

ION	AREA	DEPTH
POOL:	<input type="checkbox"/> >100ft ²	<input type="checkbox"/> >3ft

DJ MAINTENANCE

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMoured / SLUMPS
ISLANDS / SCoured
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H₂O / TILE / H₂O TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

\bar{x} width 9'
 \bar{x} depth .4'
max. depth
 \bar{x} bankfull width 13'
bankfull \bar{x} depth 4'
W/D ratio
bankfull max. depth
floodprone x^2 width
entrench. ratio

Le Tree:

Stream Drawing:



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 47.5
Stream & Location: UNT to Big Walnut Creek

RM: _ _ _ **Date:** 6-22-23

AEP Vassell-Green Chapel

Scorers Full Name & Affiliation: MRK, RBL, AECOM

River Code: _ _ _ **STORET #:** _ _ _ **Lat./ Long.:** 40.189335, -82.796647

 Office verified location ☐
1] SUBSTRATE Check **ONLY** Two substrate **TYPE BOXES**; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate <div style="border: 1px solid black; border-radius: 10px; width: 40px; height: 40px; text-align: center; line-height: 40px;">8</div> Maximum 20
<input type="checkbox"/>	BLDR /SLABS [10]			<input type="checkbox"/>	HARDPAN [4]			<input type="checkbox"/>	LIMESTONE [1]	<input type="checkbox"/>	HEAVY [-2]	
<input type="checkbox"/>	BOULDER [9]			<input type="checkbox"/>	DETRITUS [3]			<input type="checkbox"/>	TILLS [1]	<input checked="" type="checkbox"/>	MODERATE [-1]	
<input checked="" type="checkbox"/>	COBBLE [8]	25	40	<input type="checkbox"/>	MUCK [2]			<input checked="" type="checkbox"/>	WETLANDS [0]	<input type="checkbox"/>	NORMAL [0]	
<input type="checkbox"/>	GRAVEL [7]	10	40	<input checked="" type="checkbox"/>	SILT [2]	65	20	<input type="checkbox"/>	HARDPAN [0]	<input type="checkbox"/>	FREE [1]	
<input type="checkbox"/>	SAND [6]			<input type="checkbox"/>	ARTIFICIAL [0]			<input type="checkbox"/>	SANDSTONE [0]	<input checked="" type="checkbox"/>	EXTENSIVE [-2]	
<input type="checkbox"/>	BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)				<input type="checkbox"/>	RIP/RAP [0]	<input checked="" type="checkbox"/>	MODERATE [-1]	
								<input type="checkbox"/>	LACUSTURINE [0]	<input type="checkbox"/>	NORMAL [0]	
								<input type="checkbox"/>	SHALE [-1]	<input type="checkbox"/>	NONE [1]	
								<input type="checkbox"/>	COAL FINES [-2]			

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments
2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

<input type="checkbox"/>	UNDERCUT BANKS [1]	<input type="checkbox"/>	POOLS > 70cm [2]	<input type="checkbox"/>	OXBOWS, BACKWATERS [1]	<input type="checkbox"/>	EXTENSIVE >75% [11]
<input type="1"/>	OVERHANGING VEGETATION [1]	<input type="checkbox"/>	ROOTWADS [1]	<input type="checkbox"/>	AQUATIC MACROPHYTES [1]	<input type="checkbox"/>	MODERATE 25-75% [7]
<input type="checkbox"/>	SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/>	BOULDERS [1]	<input type="2"/>	LOGS OR WOODY DEBRIS [1]	<input checked="" type="checkbox"/>	SPARSE 5-<25% [3]
<input type="checkbox"/>	ROOTMATS [1]					<input type="checkbox"/>	NEARLY ABSENT <5% [1]

Comments

 Cover
Maximum
20

5
3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input checked="" type="checkbox"/> GOOD [5]	<input checked="" type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments

 Channel
Maximum
20

13
4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for **EACH BANK** (Or 2 per bank & average)

River right looking downstream

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY			
<input type="1"/>	NONE / LITTLE [3]	<input type="1"/>	WIDE > 50m [4]	<input checked="" type="checkbox"/>	FOREST, SWAMP [3]	<input type="checkbox"/>	CONSERVATION TILLAGE [1]
<input checked="" type="checkbox"/>	MODERATE [2]	<input checked="" type="checkbox"/>	MODERATE 10-50m [3]	<input type="checkbox"/>	SHRUB OR OLD FIELD [2]	<input type="checkbox"/>	URBAN OR INDUSTRIAL [0]
<input type="checkbox"/>	HEAVY / SEVERE [1]	<input checked="" type="checkbox"/>	NARROW 5-10m [2]	<input type="checkbox"/>	RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/>	MINING / CONSTRUCTION [0]
		<input type="checkbox"/>	VERY NARROW < 5m [1]	<input type="checkbox"/>	FENCED PASTURE [1]		
		<input type="checkbox"/>	NONE [0]	<input type="checkbox"/>	OPEN PASTURE, ROWCROP [0]		

Comments

Indicate predominant land use(s) past 100m riparian.

 Riparian
Maximum
10

7.5
5] POOL / GLIDE AND RIFFLE / RUN QUALITY
MAXIMUM DEPTH
CHANNEL WIDTH
CURRENT VELOCITY

Check ONE (ONLY!)

Check ONE (Or 2 & average)

Check ALL that apply

☐ > 1m [6]
☐ 0.7-<1m [4]
☐ 0.4-<0.7m [2]
☐ 0.2-<0.4m [1]
☒ < 0.2m [0]

☐ POOL WIDTH > RIFFLE WIDTH [2]
☒ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH > RIFFLE WIDTH [0]

☐ TORRENTIAL [-1] ☒ SLOW [1]
☐ VERY FAST [1] ☐ INTERSTITIAL [-1]
☐ FAST [1] ☐ INTERMITTENT [-2]
☐ MODERATE [1] ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

 Pool /
Current
Maximum
12

2

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]
<input checked="" type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]
			<input type="checkbox"/> EXTENSIVE [-1]

Comments

 Riffle /
Run
Maximum
8

2
6] GRADIENT (25.2 ft/mi) ☐ VERY LOW - LOW [2-4]
DRAINAGE AREA (1.08 mi²) ☒ MODERATE [6-10]
☐ HIGH - VERY HIGH [10-6]

 %POOL: 90 %GLIDE: 10
 %RUN: 90 %RIFFLE: 10

 Gradient
Maximum
10

10

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☐ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input type="checkbox"/> WWH Name:	Headwaters Blacklick Creek 050600011503	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Jersey** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Licking** Township / City: **Jersey**

MISCELLANEOUSBase Flow Conditions? (Y/N): ☐ Y ☐ Date of last precipitation: **06/20/23** Quantity: **0.1**Photograph Information: **Upstream, downstream, substrate**Elevated Turbidity? (Y/N): ☐ N ☐ Canopy (% open): **100** Overall Stability of BOTH Stream Banks (check one):
Stable ☐ Moderately Stable ☒ Unstable ☐Were samples collected for water chemistry? (Y/N): ☐ N ☐ (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) ☐ Y ☐ If not, please explain:

Additional comments/description of pollution impacts:

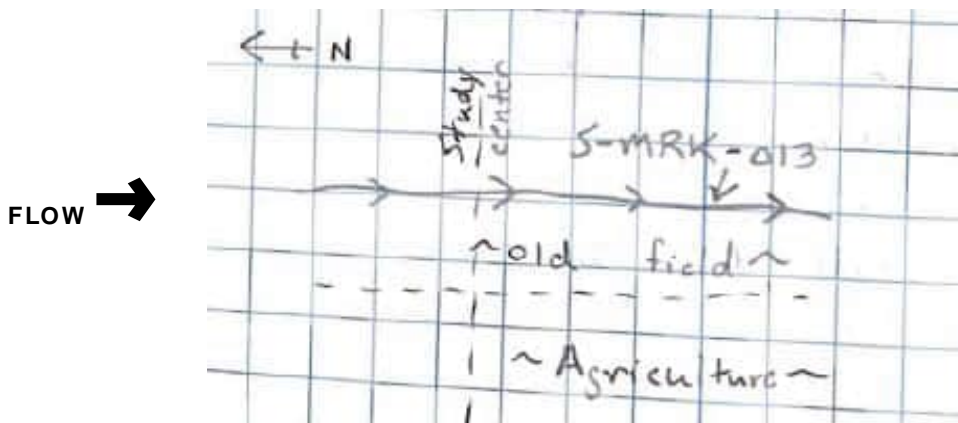
Agricultural runoff**BIOTIC EVALUATION**Performed? (Y/N): ☐ Y ☐ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N)	<input type="checkbox"/> N <input type="checkbox"/>	Voucher? (Y/N)	<input type="checkbox"/> N <input type="checkbox"/>	Salamanders Observed? (Y/N)	<input type="checkbox"/> N <input type="checkbox"/>	Voucher? (Y/N)	<input type="checkbox"/> N <input type="checkbox"/>
Frogs or Tadpoles Observed? (Y/N)	<input type="checkbox"/> Y <input type="checkbox"/>	Voucher? (Y/N)	<input type="checkbox"/> N <input type="checkbox"/>	Aquatic Macroinvertebrates Observed? (Y/N)	<input type="checkbox"/> N <input type="checkbox"/>	Voucher? (Y/N)	<input type="checkbox"/> N <input type="checkbox"/>

Comments Regarding Biology:

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

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





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

56

SITE NAME/LOCATION **Vassell-Green Chapel**SITE NUMBER **NA**

RIVER BASIN

DRAINAGE AREA (mi²) **0.65**LENGTH OF STREAM REACH (ft) **250**LAT. **40.17352**LONG. **-82.77655**RIVER CODE **NA**RIVER MILE **NA**DATE **06/22/23**SCORER **MRK, RBL**

COMMENTS

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

STREAM CHANNEL

☐ NONE / NATURAL CHANNEL☐ RECOVERED☒ RECOVERING☐ RECENT OR NO RECOVERY

MODIFICATIONS:

Channelized swale

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input checked="" type="checkbox"/> SILT [3 pt]	<input type="text" value="90"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="0"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="0"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="10"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

(A)

Substrate Percentage Check

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40

11

A + B

Pool Depth Max = 30

15

Bankfull Width Max=30

30

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
- | | |
|--|---|
| <input type="checkbox"/> > 30 centimeters [20 pts] | <input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts] |
| <input type="checkbox"/> > 22.5 - 30 cm [30 pts] | <input type="checkbox"/> < 5 cm [5 pts] |
| <input type="checkbox"/> > 10 - 22.5 cm [25 pts] | <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts] |

COMMENTS

MAXIMUM POOL DEPTH

(Inches):

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):
- | | |
|---|---|
| <input checked="" type="checkbox"/> > 4.0 meters (> 13') [30 pts] | <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] |
| <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] | <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] |
| <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] | |

COMMENTS

AVERAGE BANKFULL WIDTH

(Feet):

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS Agricultural runoffFLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

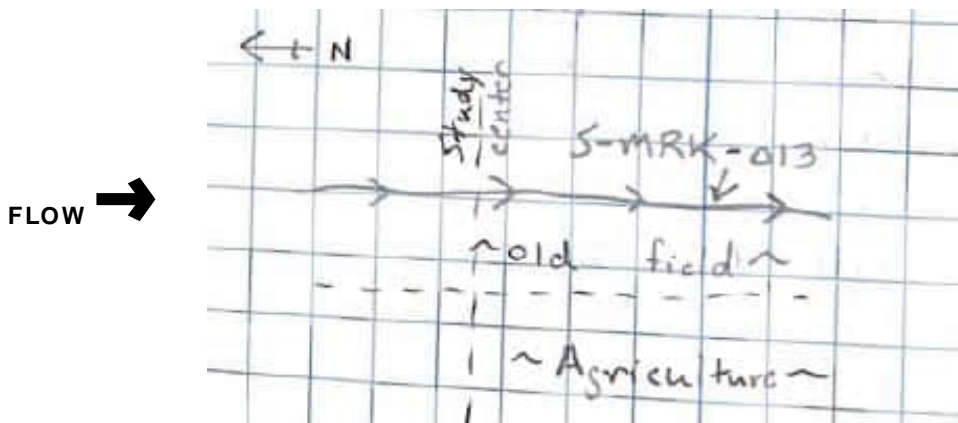
☒ Flat (0.5 ft/100 ft)
 ☐ Flat to Moderate
 ☐ Moderate (2 ft/100 ft)
 ☐ Moderate to Severe
 ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Duncan Run 050600011307	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **Jersey** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Delaware** Township / City: **Harlem****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **06/20/23** Quantity: **0.10**Photograph Information: **Upstream, downstream, substrate**Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **100** Overall Stability of BOTH Stream Banks (check one):
Stable ☒ Moderately Stable ☐ Unstable ☐Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ NComments Regarding Biology: **DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

49

Stream & Location: Duncan Run, Licking Co., OH

RM: _ _ _ Date: 6-27-23

Scorers Full Name & Affiliation: MRK, TW/AECOM

River Code: - - - STORET #: - - - Lat./ Long.: (NAD 83 - decimal °)

Office verified location ☐

1] SUBSTRATE

Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES POOL RIFFLE

<input type="checkbox"/>	BLDR /SLABS [10]		
<input type="checkbox"/>	BOULDER [9]		
<input checked="" type="checkbox"/>	COBBLE [8]	25	25
<input type="checkbox"/>	GRAVEL [7]	20	20
<input type="checkbox"/>	SAND [6]	15	15
<input type="checkbox"/>	BEDROCK [5]		

OTHER TYPES POOL RIFFLE

<input type="checkbox"/>	HARDPAN [4]		
<input type="checkbox"/>	DETRITUS [3]		
<input type="checkbox"/>	MUCK [2]		
<input checked="" type="checkbox"/>	SILT [2]	40	40
<input type="checkbox"/>	ARTIFICIAL [0]		

(Score natural substrates; ignore

ORIGIN

<input type="checkbox"/>	LIMESTONE [1]
<input type="checkbox"/>	TILLS [1]
<input checked="" type="checkbox"/>	WETLANDS [0]
<input type="checkbox"/>	HARDPAN [0]
<input type="checkbox"/>	SANDSTONE [0]
<input type="checkbox"/>	RIP/RAP [0]
<input type="checkbox"/>	LACUSTURINE [0]
<input type="checkbox"/>	SHALE [-1]
<input type="checkbox"/>	COAL FINES [-2]

QUALITY

<input type="checkbox"/>	HEAVY [-2]
<input checked="" type="checkbox"/>	MODERATE [-1]
<input type="checkbox"/>	NORMAL [0]
<input type="checkbox"/>	FREE [1]
<input type="checkbox"/>	EXTENSIVE [-2]
<input checked="" type="checkbox"/>	MODERATE [-1]
<input type="checkbox"/>	NORMAL [0]
<input type="checkbox"/>	NONE [1]

SILT

EMBEDDEDNESS

Substrate

8

Maximum 20

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☐ 3 or less [0]

Comments

2] INSTREAM COVER

Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

<input type="checkbox"/>	UNDERCUT BANKS [1]
<input type="checkbox"/>	OVERHANGING VEGETATION [1]
<input type="checkbox"/>	SHALLOWS (IN SLOW WATER) [1]
<input type="checkbox"/>	ROOTMATS [1]

POOLS > 70cm [2]

<input type="checkbox"/>	ROOTWADS [1]
<input type="checkbox"/>	BOULDERS [1]

OXBOWS, BACKWATERS [1]

<input type="checkbox"/>	AQUATIC MACROPHYTES [1]
<input type="checkbox"/>	LOGS OR WOODY DEBRIS [1]

<input type="checkbox"/>	EXTENSIVE >75% [11]
<input checked="" type="checkbox"/>	MODERATE 25-75% [7]
<input type="checkbox"/>	SPARSE 5-<25% [3]
<input type="checkbox"/>	NEARLY ABSENT <5% [1]

Comments

Cover
Maximum
20

9

3] CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

SINUOSITY

<input type="checkbox"/>	HIGH [4]
<input checked="" type="checkbox"/>	MODERATE [3]
<input type="checkbox"/>	LOW [2]
<input type="checkbox"/>	NONE [1]

DEVELOPMENT

<input type="checkbox"/>	EXCELLENT [7]
<input checked="" type="checkbox"/>	GOOD [5]
<input type="checkbox"/>	FAIR [3]
<input type="checkbox"/>	POOR [1]

CHANNELIZATION

<input type="checkbox"/>	NONE [6]
<input checked="" type="checkbox"/>	RECOVERED [4]
<input type="checkbox"/>	RECOVERING [3]
<input type="checkbox"/>	RECENT OR NO RECOVERY [1]

STABILITY

<input type="checkbox"/>	HIGH [3]
<input checked="" type="checkbox"/>	MODERATE [2]
<input type="checkbox"/>	LOW [1]

Comments

Channel
Maximum
20

14

4] BANK EROSION AND RIPARIAN ZONE

River right looking downstream

Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION

<input type="checkbox"/>	NONE / LITTLE [3]
<input checked="" type="checkbox"/>	MODERATE [2]
<input type="checkbox"/>	HEAVY / SEVERE [1]

RIPARIAN WIDTH

<input type="checkbox"/>	WIDE > 50m [4]
<input type="checkbox"/>	MODERATE 10-50m [3]
<input type="checkbox"/>	NARROW 5-10m [2]
<input type="checkbox"/>	VERY NARROW < 5m [1]
<input checked="" type="checkbox"/>	NONE [0]

FLOOD PLAIN QUALITY

<input type="checkbox"/>	FOREST, SWAMP [3]
<input type="checkbox"/>	SHRUB OR OLD FIELD [2]
<input type="checkbox"/>	RESIDENTIAL, PARK, NEW FIELD [1]
<input type="checkbox"/>	FENCED PASTURE [1]
<input checked="" type="checkbox"/>	OPEN PASTURE, ROWCROP [0]

<input type="checkbox"/>	CONSERVATION TILLAGE [1]
<input type="checkbox"/>	URBAN OR INDUSTRIAL [0]
<input type="checkbox"/>	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian
Maximum
10

2

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check ONE (ONLY!)

<input type="checkbox"/>	> 1m [6]
<input type="checkbox"/>	0.7-<1m [4]
<input type="checkbox"/>	0.4-<0.7m [2]
<input type="checkbox"/>	0.2-<0.4m [1]
<input checked="" type="checkbox"/>	< 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

<input checked="" type="checkbox"/>	POOL WIDTH > RIFFLE WIDTH [2]
<input type="checkbox"/>	POOL WIDTH = RIFFLE WIDTH [1]
<input type="checkbox"/>	POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

<input type="checkbox"/>	TORRENTIAL [-1]	<input type="checkbox"/>	SLOW [1]
<input type="checkbox"/>	VERY FAST [1]	<input type="checkbox"/>	INTERSTITIAL [-1]
<input type="checkbox"/>	FAST [1]	<input type="checkbox"/>	INTERMITTENT [-2]
<input checked="" type="checkbox"/>	MODERATE [1]	<input checked="" type="checkbox"/>	EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential

Primary Contact

Secondary Contact
(circle one and comment on back)

Comments

Pool /
Current
Maximum
12

4

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH

<input type="checkbox"/>	BEST AREAS > 10cm [2]
<input type="checkbox"/>	BEST AREAS 5-10cm [1]
<input checked="" type="checkbox"/>	BEST AREAS < 5cm [metric=0]

RUN DEPTH

<input type="checkbox"/>	MAXIMUM > 50cm [2]
<input checked="" type="checkbox"/>	MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE

<input type="checkbox"/>	STABLE (e.g., Cobble, Boulder) [2]
<input checked="" type="checkbox"/>	MOD. STABLE (e.g., Large Gravel) [1]
<input type="checkbox"/>	UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS

<input type="checkbox"/>	NONE [2]
<input type="checkbox"/>	LOW [1]
<input checked="" type="checkbox"/>	MODERATE [0]
<input type="checkbox"/>	EXTENSIVE [-1]

Comments

Riffle /
Run
Maximum
8

2

6] GRADIENT (

DRAINAGE AREA

(44 mi²)

<input type="checkbox"/>	VERY LOW - LOW [2-4]
<input checked="" type="checkbox"/>	MODERATE [6-10]
<input type="checkbox"/>	HIGH - VERY HIGH [10-6]

%POOL:

10

%GLIDE:

0

%RUN:

70

%RIFFLE:

20

Gradient
Maximum
10

6

AJ SAMPLED REACH

Check ALL that apply

METHOD	STAGE
<input type="checkbox"/> BOAT	1st - sample pass - 2nd
<input type="checkbox"/> WADE	<input type="checkbox"/> HIGH <input type="checkbox"/>
<input type="checkbox"/> L. LINE	<input type="checkbox"/> UP <input type="checkbox"/>
<input checked="" type="checkbox"/> OTHER	<input checked="" type="checkbox"/> NORMAL <input type="checkbox"/>
	<input type="checkbox"/> LOW <input type="checkbox"/>
	<input type="checkbox"/> DRY <input type="checkbox"/>

DISTANCE

☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☐ OTHER

200 feet

CLARITY

1st	--sample pass--	2nd
<input type="checkbox"/>	< 20 cm	<input type="checkbox"/>
<input type="checkbox"/>	20-40 cm	<input type="checkbox"/>
<input type="checkbox"/>	40-70 cm	<input type="checkbox"/>
<input type="checkbox"/>	> 70 cm/ CTB	<input type="checkbox"/>
<input type="checkbox"/>	SECCHI DEPTH	<input type="checkbox"/>

CANOPY

☒ > 85%- OPEN
☐ 55%-<85%
☐ 30%-<55%
☐ 10%-<30%
☐ <10%-CLOSED

CJ REC**BJ AESTHETIC**

☒ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☐ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☐ OIL SHEEN
☐ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSOs/SSOs/OUTFALLS

ION

AREA DEPTH
POOL: ☐ >100ft² ☐ >3ft

DJ MAINTENANCE

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMoured / SLUMPS
ISLANDS / SCoured
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

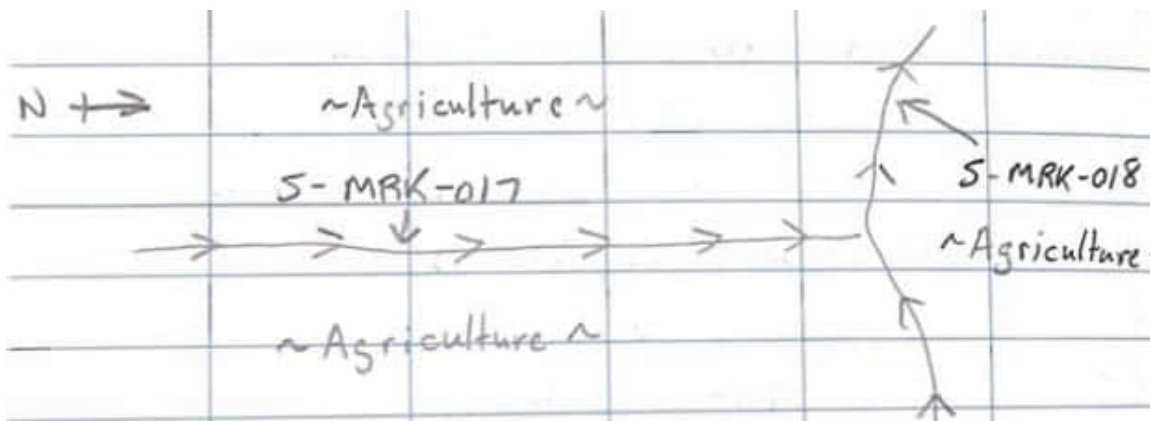
EJ ISSUES

WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H₂O / TILE / H₂O TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

\bar{x} width 7'
 \bar{x} depth 4"
max. depth
 \bar{x} bankfull width 15'
bankfull \bar{x} depth 7'
W/D ratio
bankfull max. depth
floodprone x^2 width
entrench. ratio

Le Tree:

Stream Drawing:



Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

60

SITE NAME/LOCATION **Vassell-Green Chapel**

SITE NUMBER **NA** RIVER BASIN **Scioto** DRAINAGE AREA (mi²) **0.64**

LENGTH OF STREAM REACH (ft) **200** LAT. **40.22405** LONG. **-82.85362** RIVER CODE **NA** RIVER MILE **NA**

DATE **09/11/23** SCORER **MRK, KRS** COMMENTS **Perennial stream in forested area.**

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 10
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 0
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 60	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 20	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 10	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

60

(A)

Substrate Percentage Check

100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

21

TOTAL NUMBER OF SUBSTRATE TYPES:

4

HHEI Metric Points

Substrate Max = 40

25

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches):

1.00

Pool Depth Max = 30

5

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

<input checked="" type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS BF = 14'w x 4'd

AVERAGE BANKFULL WIDTH

(Feet):

14.00

Bankfull Width Max=30

30

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/>	Stream Flowing	<input type="checkbox"/>	Moist Channel, isolated pools, no flow (Intermittent)
<input checked="" type="checkbox"/>	Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/>	Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/>	None	<input type="checkbox"/>	1.0	<input type="checkbox"/>	2.0	<input type="checkbox"/>	3.0
<input type="checkbox"/>	0.5	<input checked="" type="checkbox"/>	1.5	<input type="checkbox"/>	2.5	<input type="checkbox"/>	>3

STREAM GRADIENT ESTIMATE

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

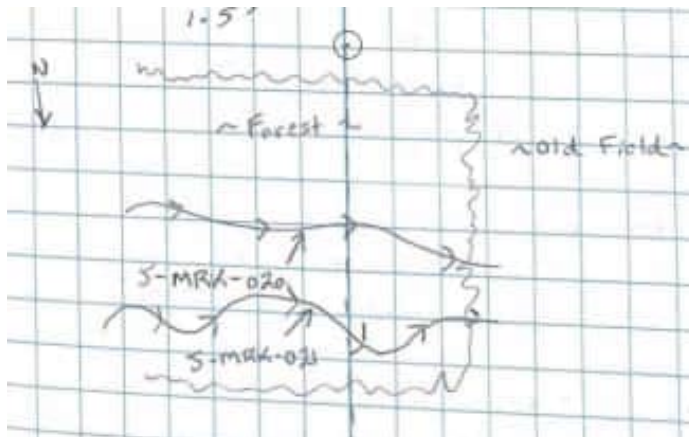
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Big Walnut Creek	Distance from Evaluated Stream: 0.81
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **Sunbury** NRCS Soil Map Page: NRCS Soil Map Stream Order:
County: **Delaware** Township / City: **Berkshire****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **09/10/23** Quantity: **0.10**
Photograph Information: **Upstream, downstream, substrate**
Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **10** Overall Stability of BOTH Stream Banks (check one):
Stable ☐ Moderately Stable ☒ Unstable ☐
Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) ☒ Y Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Comments Regarding Biology:
Fish were observed.**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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

FLOW →





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

24

SITE NAME/LOCATION **Vassell-Green Chapel**SITE NUMBER **NA**RIVER BASIN **Scioto**DRAINAGE AREA (mi²) **0.05**LENGTH OF STREAM REACH (ft) **200**LAT. **40.22522**LONG. **-82.85353**RIVER CODE **NA**RIVER MILE **NA**DATE **09/11/23**SCORER **MRK, KRS**COMMENTS **Ephemeral stream within forested area.****NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions****STREAM CHANNEL MODIFICATIONS:**☐ NONE / NATURAL CHANNEL☒ RECOVERED☐ RECOVERING☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input checked="" type="checkbox"/> SILT [3 pt]	<input type="text" value="20"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="20"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="10"/>	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="30"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="10"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="10"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10**

(A)

Substrate Percentage Check **100**

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**TOTAL NUMBER OF SUBSTRATE TYPES: **6****HHEI Metric Points**

Substrate Max = 40

9

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH

(Inches): **0.00**

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

Bankfull Width Max=30

15COMMENTS **BF = 3.5'w x 1.5'd**AVERAGE BANKFULL WIDTH (Feet): **3.50****This information must also be completed****RIPARIAN ZONE AND FLOODPLAIN QUALITY**

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH**FLOODPLAIN QUALITY**

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

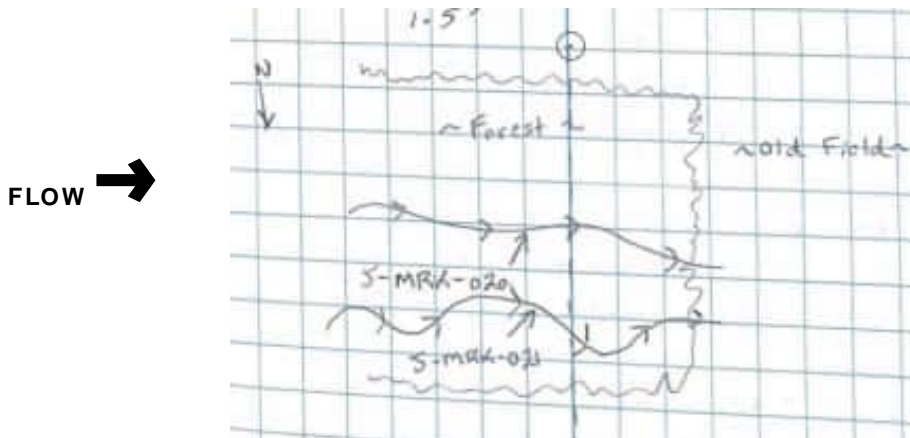
STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft)
 ☒ Flat to Moderate
 ☐ Moderate (2 ft/100 ft)
 ☐ Moderate to Severe
 ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Big Walnut Creek	Distance from Evaluated Stream	0.81
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **Sunbury** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Delaware** Township / City: **Berkshire****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **09/10/23** Quantity: **0.10**Photograph Information: **Upstream, downstream, substrate**Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **10** Overall Stability of BOTH Stream Banks (check one):
Stable ☐ Moderately Stable ☒ Unstable ☐Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ NComments Regarding Biology: **DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

42

SITE NAME/LOCATION **Vassell-Green Chapel**

SITE NUMBER **NA** RIVER BASIN **Scioto** DRAINAGE AREA (mi²) **0.32**

LENGTH OF STREAM REACH (ft) **200** LAT. **40.22605** LONG. **-82.85353** RIVER CODE **NA** RIVER MILE **NA**

DATE **09/11/23** SCORER **MRK, KRS** COMMENTS **Perennial stream within forested area.**

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input checked="" type="checkbox"/> SILT [3 pt]	<input type="text" value="25"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="15"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="15"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0"/>
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="30"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="15"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

15

(A)

Substrate Percentage Check

100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12

TOTAL NUMBER OF SUBSTRATE TYPES: 5

HHEI Metric Points

Substrate Max = 40

17

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches): 3.00

Pool Depth Max = 30

5

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS BF = 9'w x 3.25'd

AVERAGE BANKFULL WIDTH

(Feet): 9.00

Bankfull Width Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input checked="" type="checkbox"/>	Stream Flowing	<input type="checkbox"/>	Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/>	Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/>	Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/>	None	<input type="checkbox"/>	1.0	<input type="checkbox"/>	2.0	<input checked="" type="checkbox"/>	3.0
<input type="checkbox"/>	0.5	<input type="checkbox"/>	1.5	<input type="checkbox"/>	2.5	<input type="checkbox"/>	>3

STREAM GRADIENT ESTIMATE

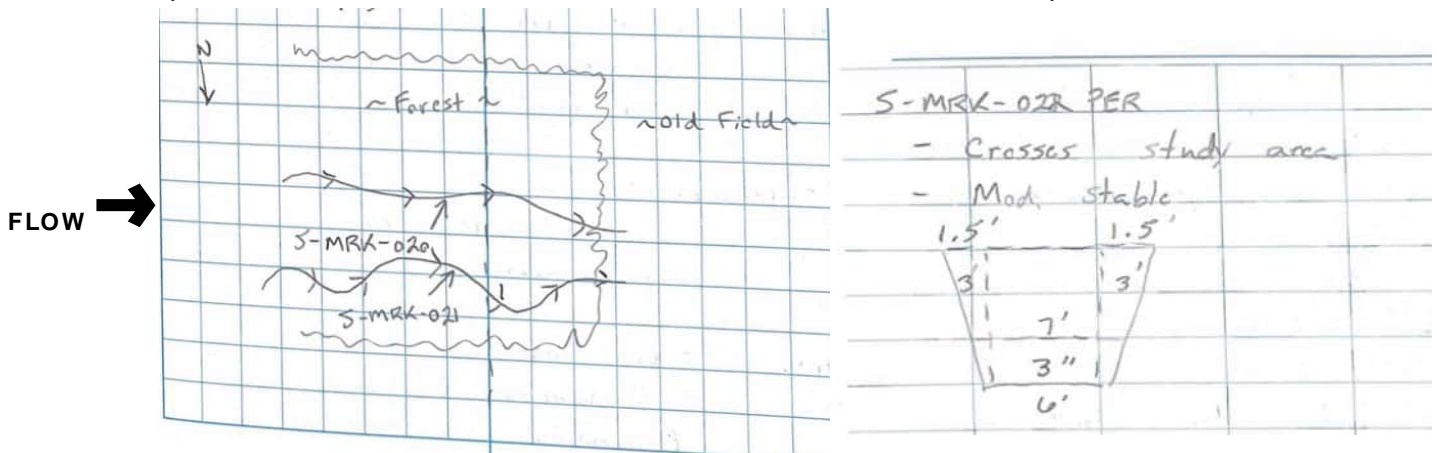
☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Big Walnut Creek	Distance from Evaluated Stream: 0.56
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **Sunbury** NRCS Soil Map Page: NRCS Soil Map Stream Order:
County: **Delaware** Township / City: **Berkshire****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **09/10/23** Quantity: **0.10**
Photograph Information: **Upstream, downstream, substrate**
Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **10** Overall Stability of BOTH Stream Banks (check one):
Stable ☐ Moderately Stable ☒ Unstable ☐
Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) ☒ Y Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Comments Regarding Biology:
Fish were observed.**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

28

SITE NAME/LOCATION **Vassell-Green Chapel**SITE NUMBER **NA**RIVER BASIN **Scioto**DRAINAGE AREA (mi²) **0.41**LENGTH OF STREAM REACH (ft) **200**LAT. **40.21734**LONG. **-82.84854**RIVER CODE **NA**RIVER MILE **NA**DATE **09/11/23**SCORER **MRK, KRS**COMMENTS **Intermittent Stream****NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions****STREAM CHANNEL MODIFICATIONS:**☐ NONE / NATURAL CHANNEL☒ RECOVERED☐ RECOVERING☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input checked="" type="checkbox"/> SILT [3 pt]	<input type="text" value="25"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="5"/>	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="30"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="10"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="10"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="10"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="10"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

15**(A)**

Substrate Percentage Check

100**(B)**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

7**HHEI Metric Points**

Substrate Max = 40

13**A + B**

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches): **0.00**

Pool Depth Max = 30

0

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS **BF = 3.5'w x 1.5'd**

AVERAGE BANKFULL WIDTH

(Feet): **3.50**

Bankfull Width Max=30

15**This information must also be completed****RIPARIAN ZONE AND FLOODPLAIN QUALITY**

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH**FLOODPLAIN QUALITY**

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft)
 ☒ Flat to Moderate
 ☐ Moderate (2 ft/100 ft)
 ☐ Moderate to Severe
 ☐ Severe (10 ft/100 ft)

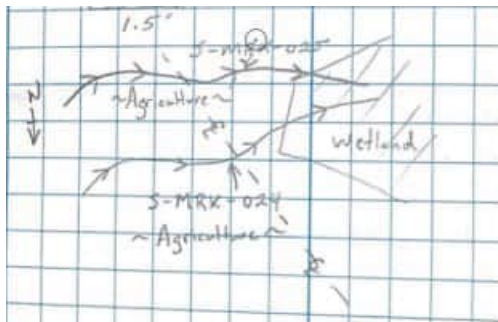
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Big Walnut Creek	Distance from Evaluated Stream	1.40
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **Sunbury** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Delaware** Township / City: **Trenton****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **09/10/23** Quantity: **0.10**Photograph Information: **Upstream, downstream, substrate**Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **100** **Overall Stability of BOTH Stream Banks (check one):**
Stable ☐ Moderately Stable ☒ Unstable ☐Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ NComments Regarding Biology: **DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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

FLOW →





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

41

SITE NAME/LOCATION **Vassell-Green Chapel**

SITE NUMBER **NA** RIVER BASIN **Scioto** DRAINAGE AREA (mi²) **0.41**

LENGTH OF STREAM REACH (ft) **200** LAT. **40.21680** LONG. **-82.84787** RIVER CODE **NA** RIVER MILE **NA**

DATE **09/11/23** SCORER **MRK, KRS** COMMENTS **Intermittent Stream**

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

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS: **Drains through wetland W-MRK-024.**

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> SILT [3 pt]	<input type="text" value="20"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="10"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="10"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="40"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="10"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="10"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

50

(A)

Substrate Percentage Check

100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15

TOTAL NUMBER OF SUBSTRATE TYPES: 6

HHEI Metric Points

Substrate Max = 40

21

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches): 1.00

Pool Depth Max = 30

0

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS BF = 7'w x 3'd

AVERAGE BANKFULL WIDTH

(Feet): 7.00

Bankfull Width Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/>	Stream Flowing	<input type="checkbox"/>	Moist Channel, isolated pools, no flow (Intermittent)
<input checked="" type="checkbox"/>	Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/>	Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/>	None	<input type="checkbox"/>	1.0	<input checked="" type="checkbox"/>	2.0	<input type="checkbox"/>	3.0
<input type="checkbox"/>	0.5	<input type="checkbox"/>	1.5	<input type="checkbox"/>	2.5	<input type="checkbox"/>	>3

STREAM GRADIENT ESTIMATE

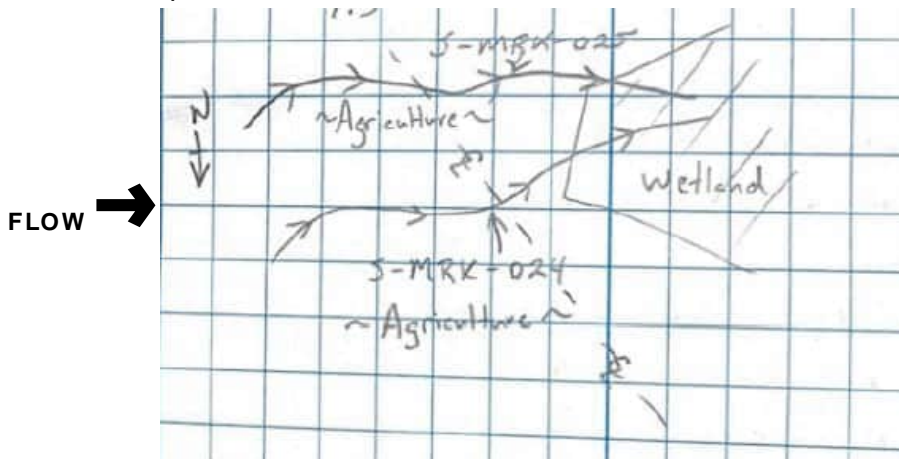
☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Big Walnut Creek	Distance from Evaluated Stream	1.40
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **Sunbury** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Delaware** Township / City: **Trenton****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **09/10/23** Quantity: **0.10**Photograph Information: **Upstream, downstream, substrate**Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **80** **Overall Stability of BOTH Stream Banks (check one):**
Stable ☐ Moderately Stable ☒ Unstable ☐Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ NComments Regarding Biology: **DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **54.00**

Stream & Location: S-MRK-026 / AEP Vassell-Green Chapel

RM: 3.0 Date: 9 / 12 / 23

UNT to Big Walnut Creek (Hoover Reservoir)

Scorers Full Name & Affiliation: Matt Kline AECOM

River Code: - - - - -

STORET #: - - - - -

Lat./ Long.: 40.21255, -82.84012
(NAD 83 - decimal°)Office verified location ☐

1] **SUBSTRATE** Check ONLY Two substrate TYPE BOXES;
estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
	POOL RIFFLE		POOL RIFFLE				
<input type="checkbox"/> BLDR / SLABS [10]		<input type="checkbox"/> HARDPAN [4]		<input type="checkbox"/> LIMESTONE [1]		<input type="checkbox"/> HEAVY [-2]	Substrate 11 Maximum 20
<input type="checkbox"/> BOULDER [9]		<input type="checkbox"/> DETRITUS [3]		<input checked="" type="checkbox"/> TILLS [1]		<input type="checkbox"/> MODERATE [-1]	
<input checked="" type="checkbox"/> COBBLE [8]	x x	<input type="checkbox"/> MUCK [2]		<input type="checkbox"/> WETLANDS [0]		<input checked="" type="checkbox"/> NORMAL [0]	
<input type="checkbox"/> GRAVEL [7]		<input checked="" type="checkbox"/> SILT [2]	x	<input type="checkbox"/> HARDPAN [0]		<input type="checkbox"/> FREE [1]	
<input type="checkbox"/> SAND [6]	x	<input type="checkbox"/> ARTIFICIAL [0]		<input type="checkbox"/> SANDSTONE [0]		<input type="checkbox"/> EXTENSIVE [-2]	
<input type="checkbox"/> BEDROCK [5]				<input type="checkbox"/> RIP/RAP [0]		<input type="checkbox"/> MODERATE [-1]	
(Score natural substrates; ignore sludge from point-sources)				<input type="checkbox"/> LACUSTURINE [0]		<input checked="" type="checkbox"/> NORMAL [0]	
				<input type="checkbox"/> SHALE [-1]		<input type="checkbox"/> NONE [1]	
				<input type="checkbox"/> COAL FINES [-2]			

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

2] **INSTREAM COVER** Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

1 UNDERCUT BANKS [1]	0 POOLS > 70cm [2]	0 OXBOWS, BACKWATERS [1]	<input type="checkbox"/> EXTENSIVE >75% [11]
1 OVERHANGING VEGETATION [1]	0 ROOTWADS [1]	1 AQUATIC MACROPHYTES [1]	<input type="checkbox"/> MODERATE 25-75% [7]
0 SHALLOWS (IN SLOW WATER) [1]	0 BOULDERS [1]	0 LOGS OR WOODY DEBRIS [1]	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]
0 ROOTMATS [1]			<input type="checkbox"/> NEARLY ABSENT <5% [1]

Comments

Cover
Maximum
20
6

3] **CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input checked="" type="checkbox"/> MODERATE [3]	<input checked="" type="checkbox"/> GOOD [5]	<input checked="" type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]
<input type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments

Channel
Maximum
20
14

4] **BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE	
L	R	L	R	L	R	L	R
<input type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/> WIDE > 50m [4]	<input checked="" type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]				
<input checked="" type="checkbox"/> MODERATE [2]	<input checked="" type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]				
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> MINING / CONSTRUCTION [0]				
	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]					
	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]					

Comments

Indicate predominant land use(s)
past 100m riparian.
Riparian
Maximum
10
8.00

5] **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH

Check ONE (ONLY!)

☐ > 1m [6]
☐ 0.7-<1m [4]
☐ 0.4-<0.7m [2]
☐ 0.2-<0.4m [1]
☒ < 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

☐ POOL WIDTH > RIFFLE WIDTH [2]
☒ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

☐ TORRENTIAL [-1] ☒ SLOW [1]
☐ VERY FAST [1] ☐ INTERSTITIAL [-1]
☐ FAST [1] ☐ INTERMITTENT [-2]
☒ MODERATE [1] ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Comments

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Pool /
Current
Maximum
12
3

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input checked="" type="checkbox"/> LOW [1]
<input checked="" type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]
			<input type="checkbox"/> EXTENSIVE [-1]

Comments

Riffle /
Run
Maximum
8
2

6] **GRADIENT** (18.60 ft/mi) ☒ VERY LOW - LOW [2-4]
DRAINAGE AREA (1.29 mi²) ☐ MODERATE [6-10]
☐ HIGH - VERY HIGH [10-6]

%POOL: 25.00

%GLIDE: 0.00

%RUN: 0.00

%RIFFLE: 75.00

Gradient
Maximum
10
10

AJ SAMPLED REACH

Check ALL that apply

METHOD

☐ BOAT

☒ WADE

☐ L. LINE

☐ OTHER

DISTANCE

☐ 0.5 Km

☒ 0.2 Km

☐ 0.15 Km

☐ 0.12 Km

☐ OTHER

STAGE

1st-sample pass-- 2nd

☐ HIGH

☐ UP

☒ NORMAL

☐ LOW

☐ DRY

CLARITY

1st --sample pass-- 2nd

☐ < 20 cm

☐ 20-<40 cm

☐ 40-70 cm

☒ > 70 cm/ CTB

SECCHI DEPTH

1st _____ cm

2nd _____ cm

CANOPY

☐ > 85%- OPEN

☐ 55%-<85%

☐ 30%-<55%

☐ 10%-<30%

☐ <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.
UNT to Big Walnut Creek, designated uses = WWH

BF = 4.5'w x 2'd

BJ AESTHETICS

☐ NUISANCE ALGAE

☐ INVASIVE MACROPHYTES

☐ EXCESS TURBIDITY

☐ DISCOLORATION

☐ FOAM / SCUM

☐ OIL SHEEN

☐ TRASH / LITTER

☐ NUISANCE ODOR

☐ SLUDGE DEPOSITS

☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

☐ PUBLIC / PRIVATE / BOTH / NA

☐ ACTIVE / HISTORIC / BOTH / NA

☐ YOUNG-SUCCESSION-OLD

☐ SPRAY / SNAG / REMOVED

☐ MODIFIED / DIPPED OUT / NA

☐ LEVEED / ONE SIDED

☐ RELOCATED / CUTOFFS

☐ MOVING-BEDLOAD-STABLE

☐ ARMoured / SLUMPS

☐ ISLANDS / SCoured

☐ IMPOUNDED / DESICCATED

☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

☐ WWTP / CSO / NPDES / INDUSTRY

☐ HARDENED / URBAN / DIRT&GRIME

☐ CONTAMINATED / LANDFILL

☐ BMPs-CONSTRUCTION-SEDIMENT

☐ LOGGING / IRRIGATION / COOLING

☐ BANK / EROSION / SURFACE

☐ FALSE BANK / MANURE / LAGOON

☐ WASH H2O / TILE / H2O TABLE

☐ ACID / MINE / QUARRY / FLOW

☐ NATURAL / WETLAND / STAGNANT

☐ PARK / GOLF / LAWN / HOME

☐ ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

☐ x width

☐ x depth

☐ max. depth 2"

☐ x bankfull width 4.5

☐ bankfull x depth 2

☐ W/D ratio

☐ bankfull max. depth

☐ floodprone x2 width

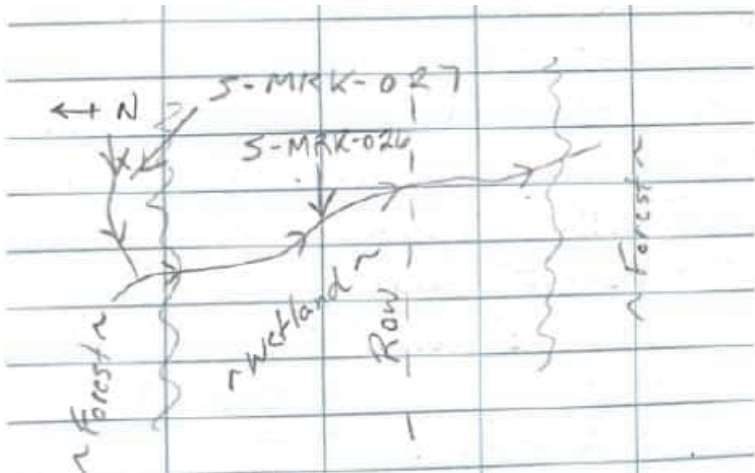
☐ entrench. ratio

CJ RECREATION

AREA DEPTH

POOL: ☐ >100ft2 ☐ >3ft

Stream Drawing:





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

28

SITE NAME/LOCATION **Vassell-Green Chapel**SITE NUMBER **NA**RIVER BASIN **Scioto**DRAINAGE AREA (mi²)LENGTH OF STREAM REACH (ft) **200**LAT. **40.21230**LONG. **-82.83951**RIVER CODE **NA**RIVER MILE **NA**DATE **09/12/23**SCORER **MRK, KRS**COMMENTS **Eph stream flows into S-MRK-026**

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

STREAM CHANNEL
MODIFICATIONS:☐ NONE / NATURAL CHANNEL☒ RECOVERED☐ RECOVERING☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input checked="" type="checkbox"/> SILT [3 pt]	<input type="text" value="30"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="10"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="0"/>	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="40"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="10"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="10"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock**0**

(A)

Substrate Percentage
Check**100**

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

3

TOTAL NUMBER OF SUBSTRATE TYPES:

5HHEI
Metric
PointsSubstrate
Max = 40**8**

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches): **0.00**Pool Depth
Max = 30**0**

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS **BF = 5'w x 1.5'd**

AVERAGE BANKFULL WIDTH

(Feet): **5.00**Bankfull
Width
Max=30**20**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name:	Big Walnut Creek (Hoover Reservoir)	Distance from Evaluated Stream	2.20
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Sunbury** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Delaware** Township / City: **Trenton**

MISCELLANEOUS

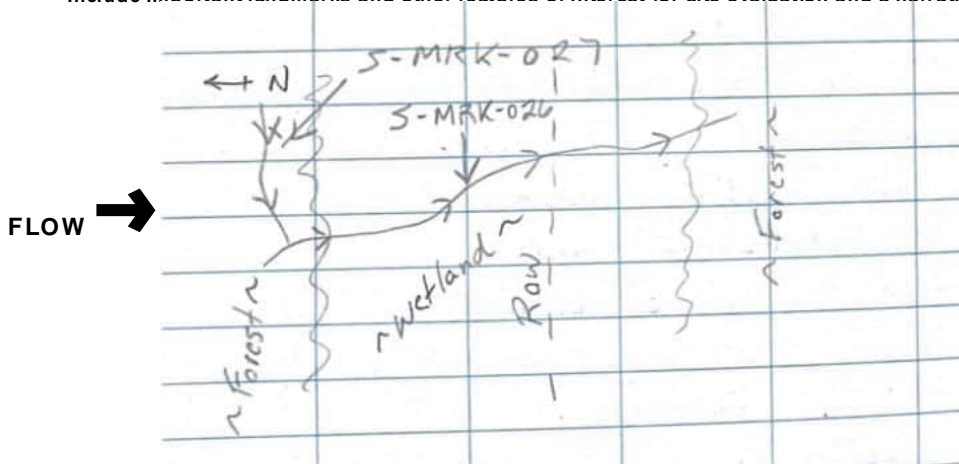
Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **09/12/23** Quantity: **0.10**
Photograph Information: **Upstream, downstream, substrate**
Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **90** **Overall Stability of BOTH Stream Banks (check one):**
Stable ☐ Moderately Stable ☒ Unstable ☐
Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain:

Additional comments/description of pollution impacts: **BIOTIC EVALUATION**

Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Comments Regarding Biology:

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

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





SITE NAME/LOCATION _____
 _____ SITE NUMBER _____ RIVER BASIN _____ DRAINAGE AREA (mi²) _____
 LENGTH OF STREAM REACH (ft) _____ LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____
 DATE _____ SCORER _____ COMMENTS _____

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

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> SILT [3 pt]	_____
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	_____
<input type="checkbox"/> BEDROCK [16 pt]	_____	<input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	_____	<input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock _____

(A)

Substrate Percentage
Check

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: _____

TOTAL NUMBER OF SUBSTRATE TYPES: _____

HHEI Metric Points

Substrate
Max = 40

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth
Max = 30

COMMENTS _____ MAXIMUM POOL DEPTH (Inches): _____

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

Bankfull
Width
Max=30

COMMENTS _____ AVERAGE BANKFULL WIDTH (Feet): _____

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS _____

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS _____

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: _____ Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): _____ Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): _____ Canopy (% open): _____ **Overall Stability of BOTH Stream Banks (check one):**
Stable Moderately Stable Unstable

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

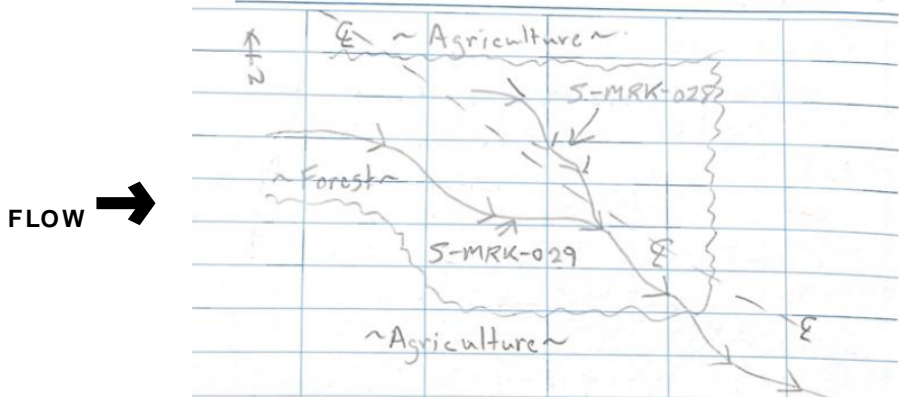
Performed? (Y/N): _____ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: _____

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

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





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

56

SITE NAME/LOCATION **Vassell-Green Chapel**

SITE NUMBER **NA** RIVER BASIN **Scioto** DRAINAGE AREA (mi²) **0.86**

LENGTH OF STREAM REACH (ft) **200** LAT. **40.19606** LONG. **-82.81613** RIVER CODE **NA** RIVER MILE **NA**

DATE **09/12/23** SCORER **MRK, KRS** COMMENTS **Intermittent Stream**

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> SILT [3 pt]	<input type="text" value="10"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="10"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="50"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0"/>
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="20"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="10"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

50

(A)

Substrate Percentage Check

100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

21

TOTAL NUMBER OF SUBSTRATE TYPES:

5

HHEI Metric Points

Substrate Max = 40

26

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches):

2.00

Pool Depth Max = 30

5

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input checked="" type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS BF = 13'w x 4'd

AVERAGE BANKFULL WIDTH

(Feet):

13.00

Bankfull Width Max=30

25

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

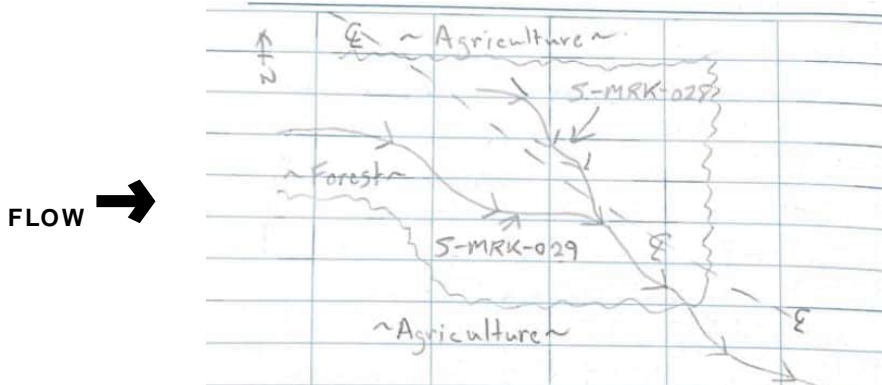
☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name:	Big Walnut Creek (Hoover Reservoir)	Distance from Evaluated Stream	4.00
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **Sunbury** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Delaware** Township / City: **Harlem****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **09/12/23** Quantity: **0.10**Photograph Information: **Upstream, downstream, substrate**Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **10** **Overall Stability of BOTH Stream Banks (check one):**
Stable ☐ Moderately Stable ☐ Unstable ☐Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ NComments Regarding Biology: **DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

52

SITE NAME/LOCATION **Vassell-Green Chapel**

SITE NUMBER **NA** RIVER BASIN **Scioto** DRAINAGE AREA (mi²) **0.18**

LENGTH OF STREAM REACH (ft) **200** LAT. **40.12302** LONG. **-82.76198** RIVER CODE **NA** RIVER MILE **NA**

DATE **09/14/23** SCORER **MRK, KRS** COMMENTS **Intermittent Stream.**

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

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS: **Stream begins a road culvert where agricultural swale, wetland, and drain pipe converge at culvert outlet.**

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 15
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 0
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 15	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 35	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 10	<input checked="" type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 25

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

15

(A)

Substrate Percentage Check

100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12**TOTAL NUMBER OF SUBSTRATE TYPES: **5**

HHEI Metric Points

Substrate Max = 40

17

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches): **3.00**

Pool Depth Max = 30

15

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS **BF = 7'w x 5'd**

AVERAGE BANKFULL WIDTH

(Feet): **7.00**

Bankfull Width Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/>	Stream Flowing	<input type="checkbox"/>	Moist Channel, isolated pools, no flow (Intermittent)
<input checked="" type="checkbox"/>	Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/>	Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	1.0	<input type="checkbox"/>	2.0	<input type="checkbox"/>	3.0
<input type="checkbox"/>	0.5	<input type="checkbox"/>	1.5	<input type="checkbox"/>	2.5	<input type="checkbox"/>	>3

STREAM GRADIENT ESTIMATE

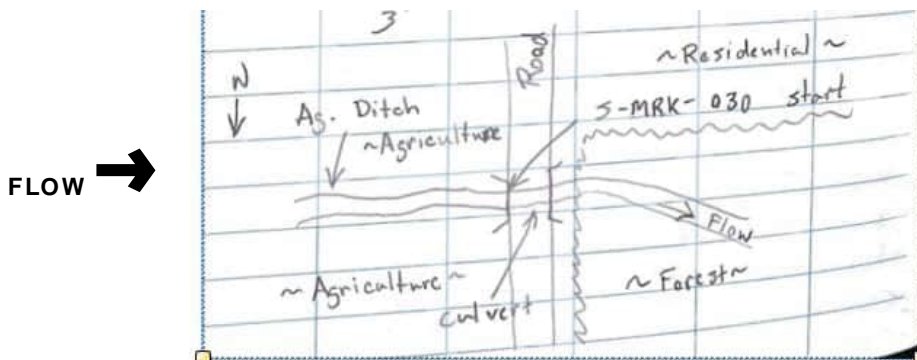
☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input type="checkbox"/> WWH Name: Blacklick Creek	Distance from Evaluated Stream	1.20
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **New Albany** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Franklin** Township / City: **Plain****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **09/12/23** Quantity: **0.10**Photograph Information: **Upstream, downstream, substrate**Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **20** **Overall Stability of BOTH Stream Banks (check one):**
Stable ☐ Moderately Stable ☒ Unstable ☐Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ NComments Regarding Biology: **DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

22

SITE NAME/LOCATION **AEP Vassell-Green Chapel**SITE NUMBER **S-MRK-032**RIVER BASIN **050600011308**DRAINAGE AREA (mi²) **0.86**LENGTH OF STREAM REACH (ft) **82** LAT. **40.19669** LONG. **-82.81747** RIVER CODE **NA** RIVER MILE **NA**DATE **12/05/23** SCORER **MRK, KRS** COMMENTS**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions****STREAM CHANNEL MODIFICATIONS:**
☒ NONE / NATURAL CHANNEL
 ☐ RECOVERED
 ☐ RECOVERING
 ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input checked="" type="checkbox"/> SILT [3 pt]	<input type="text" value="30"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="20"/>	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="30"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="20"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="0"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

20

(A)

Substrate Percentage Check

100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

3

TOTAL NUMBER OF SUBSTRATE TYPES:

4**HHEI Metric Points**

Substrate Max = 40

7

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

15

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches): **0.00**

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH

(Feet): **3.50****This information must also be completed****RIPARIAN ZONE AND FLOODPLAIN QUALITY**

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH**FLOODPLAIN QUALITY**

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

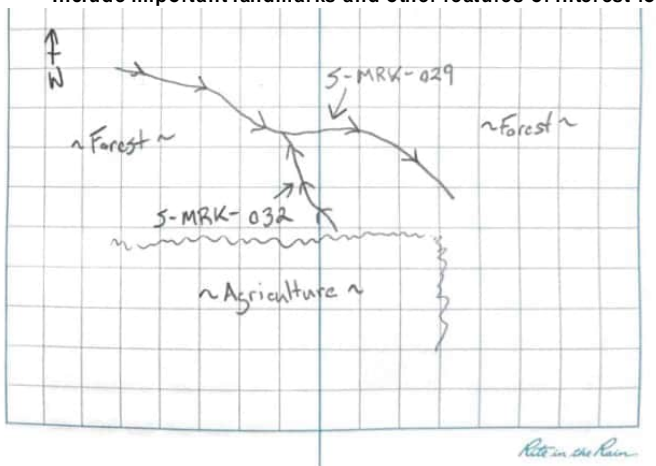
STREAM GRADIENT ESTIMATE
☒ Flat (0.5 ft/100 ft)
 ☐ Flat to Moderate
 ☐ Moderate (2 ft/100 ft)
 ☐ Moderate to Severe
 ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name:	Big Walnut Creek (Hoover Reservoir)	Distance from Evaluated Stream	1,056.00
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: **Sunbury** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Delaware** Township / City: **Columbus****MISCELLANEOUS**Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **12/05/23** Quantity: **0.10**Photograph Information: **Upstream, downstream, substrate**Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **10** Overall Stability of BOTH Stream Banks (check one):
Stable ☐ Moderately Stable ☒ Unstable ☐Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ NComments Regarding Biology: **DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

54

SITE NAME/LOCATION **Vassell-Green Chapel**

SITE NUMBER **S-MRK-033** RIVER BASIN **Scioto** DRAINAGE AREA (mi²)

LENGTH OF STREAM REACH (ft) **200** LAT. **40.19761** LONG. **-82.81884** RIVER CODE **NA** RIVER MILE **NA**

DATE **01/31/24** SCORER **MRK, KAY** COMMENTS **Intermittent Stream**

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0"/>	<input checked="" type="checkbox"/> SILT [3 pt]	<input type="text" value="45"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="0"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0"/>
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="35"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="10"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="10"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

35

(A)

Substrate Percentage Check

100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

4

HHEI Metric Points

Substrate Max = 40

19

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH

(Inches):

2.00

Pool Depth Max = 30

15

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH

(Feet):

6.00

Bankfull Width Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input checked="" type="checkbox"/>	Stream Flowing	<input type="checkbox"/>	Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/>	Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/>	Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/>	None	<input type="checkbox"/>	1.0	<input type="checkbox"/>	2.0	<input type="checkbox"/>	3.0
<input type="checkbox"/>	0.5	<input checked="" type="checkbox"/>	1.5	<input type="checkbox"/>	2.5	<input type="checkbox"/>	>3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name:	Big Walnut Creek (Hoover Reservoir)	Distance from Evaluated Stream	4.80
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Sunbury** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Delaware** Township / City: **Harlem**

MISCELLANEOUS

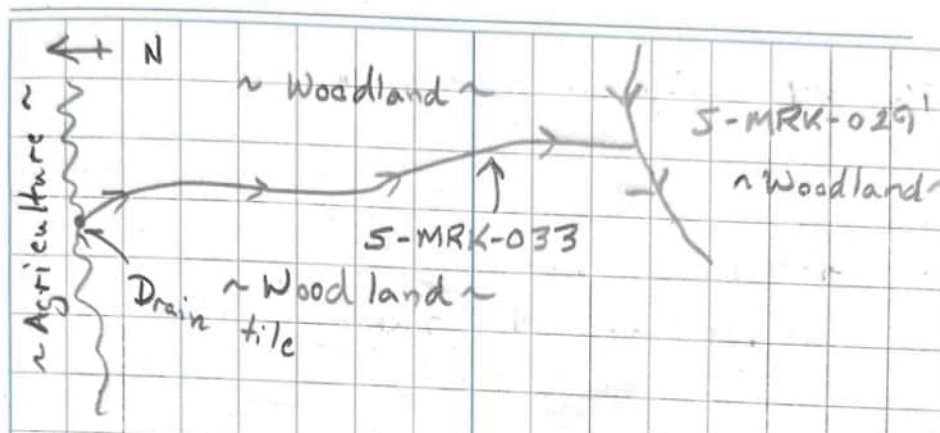
Base Flow Conditions? (Y/N): ☒ Y Date of last precipitation: **01/30/24** Quantity: **0.10**
Photograph Information: **Upstream, downstream, substrate**
Elevated Turbidity? (Y/N): ☒ N Canopy (% open): **20** Overall Stability of BOTH Stream Banks (check one):
Stable ☐ Moderately Stable ☒ Unstable ☐
Were samples collected for water chemistry? (Y/N): ☒ N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) ☒ Y If not, please explain:

Additional comments/description of pollution impacts: **BIOTIC EVALUATION**

Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Salamanders Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Frogs or Tadpoles Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N Aquatic Macroinvertebrates Observed? (Y/N) ☒ N Voucher? (Y/N) ☒ N
Comments Regarding Biology: **None observed**

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

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





Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **27.00**

Stream & Location: S-AGS-001-PER / Delaware County, Ohio RM: 4.2 Date: 7 / 15 / 24
 UNT to Big Walnut Creek

River Code: - - - - - STORET #: - - - - - Lat./ Long.: 40.211646, -82.825281 Office verified location ☐
 (NAD 83 - decimal °)

1] **SUBSTRATE** Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
	POOL RIFFLE		POOL RIFFLE				
<input type="checkbox"/> BLDR /SLABS [10]	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/>	<input type="checkbox"/> HEAVY [-2]	Substrate 5 Maximum 20
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/>	<input checked="" type="checkbox"/> DETRITUS [3]	x x	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE [-1]	
<input type="checkbox"/> COBBLE [8]	x	<input type="checkbox"/> MUCK [2]		<input checked="" type="checkbox"/> WETLANDS [0]	<input type="checkbox"/>	<input checked="" type="checkbox"/> NORMAL [0]	
<input type="checkbox"/> GRAVEL [7]		<input checked="" type="checkbox"/> SILT [2]	x x	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/>	<input type="checkbox"/> FREE [1]	
<input type="checkbox"/> SAND [6]		<input type="checkbox"/> ARTIFICIAL [0]		<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/>	<input type="checkbox"/> EXTENSIVE [-2]	
<input type="checkbox"/> BEDROCK [5]				<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE [-1]	
(Score natural substrates; ignore sludge from point-sources)				<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/>	<input checked="" type="checkbox"/> NORMAL [0]	
				<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/>	<input type="checkbox"/> NONE [1]	
				<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/>		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

2] **INSTREAM COVER** Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]	<input type="checkbox"/> EXTENSIVE >75% [11]
<input checked="" type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> AQUATIC MACROPHYTES [1]	<input type="checkbox"/> MODERATE 25-75% [7]
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]
<input type="checkbox"/> ROOTMATS [1]			<input type="checkbox"/> NEARLY ABSENT <5% [1]

Comments

Cover
Maximum
20**4**

3] **CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input checked="" type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input checked="" type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments

Channel
Maximum
20**9**

4] **BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE	
L	R	L	R	L	R	L	R
<input checked="" type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/>	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/>	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/>	<input type="checkbox"/> CONSERVATION TILLAGE [1]	<input type="checkbox"/>
<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/>	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/>
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/>	<input checked="" type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/>	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/>	<input type="checkbox"/> MINING / CONSTRUCTION [0]	<input type="checkbox"/>
		<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/>		
		<input type="checkbox"/> NONE [0]	<input type="checkbox"/>	<input checked="" type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/>		

Comments

Indicate predominant land use(s) past 100m riparian.
 Riparian
 Maximum
 10

5.00

5] **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Check ONE (ONLY!)

Check ONE (Or 2 & average)

Check ALL that apply

☐ > 1m [6]
☐ 0.7-<1m [4]
☐ 0.4-<0.7m [2]
☐ 0.2-<0.4m [1]
☒ < 0.2m [0]

☐ POOL WIDTH > RIFFLE WIDTH [2]
☒ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE WIDTH [0]

☐ TORRENTIAL [-1] ☒ SLOW [1]
☐ VERY FAST [1] ☐ INTERSTITIAL [-1]
☐ FAST [1] ☐ INTERMITTENT [-2]
☐ MODERATE [1] ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential

Primary Contact

Secondary Contact

(circle one and comment on back)

Comments

Pool /
Current
Maximum
12**2**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH

RUN DEPTH

RIFFLE / RUN SUBSTRATE

RIFFLE / RUN EMBEDDEDNESS

☐ BEST AREAS > 10cm [2]
☐ BEST AREAS 5-10cm [1]
☐ BEST AREAS < 5cm [metric=0]

☐ MAXIMUM > 50cm [2]
☐ MAXIMUM < 50cm [1]

☐ STABLE (e.g., Cobble, Boulder) [2]
☐ MOD. STABLE (e.g., Large Gravel) [1]
☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

☐ NONE [2]
☐ LOW [1]
☐ MODERATE [0]
☐ EXTENSIVE [-1]

Comments

Riffle /
Run
Maximum
8**0**

6] **GRADIENT** (15.60 ft/mi) ☒ VERY LOW - LOW [2-4]
DRAINAGE AREA (1.04 mi²) ☐ MODERATE [6-10]
☐ HIGH - VERY HIGH [10-6]

%POOL: 20.00 %GLIDE: 0.00

%RUN: 80.00 %RIFFLE: 0.00

Gradient
Maximum
10**2**

A hand-drawn diagram on lined paper showing a property layout. On the left, a rectangular area is labeled '6ft' at the top and 'Set up' at the bottom. To the right of this area is a curved line labeled 'Lawn'. Further right is a straight line labeled 'Road'. To the right of the road is another curved line labeled 'Lawn'. The entire diagram is drawn with simple lines and handwritten text.

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-005	
Date: June 15, 2023	
Description: Perennial Stream Facing Upstream	

S-MRK-005	
Date: June 15, 2023	
Description: Perennial Stream Facing Downstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

S-MRK-005	
Date: June 15, 2023	
Description: Perennial Stream Facing Substrate	

S-MRK-010	
Date: June 21, 2023	
Description: Perennial Stream Facing Upstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-010	
Date: June 21, 2023	
Description: Perennial Stream Facing Downstream	

S-MRK-010	
Date: June 21, 2023	
Description: Perennial Stream Facing Substrate	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-011	
Date: June 22, 2023	
Description: Perennial Stream Facing Upstream	

S-MRK-011	
Date: June 22, 2023	
Description: Perennial Stream Facing Downstream	


Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-011	
Date: June 22, 2023	
Description: Perennial Stream Facing Substrate	

S-MRK-012	
Date: June 22, 2023	
Description: Perennial Stream Facing Upstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-012	
Date: June 22, 2023	
Description: Perennial Stream Facing Downstream	

S-MRK-012	
Date: June 22, 2023	
Description: Perennial Stream Facing Substrate	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-013	
Date: June 22, 2023	
Description: Perennial Stream Facing Upstream	

S-MRK-013	
Date: June 22, 2023	
Description: Perennial Stream Facing Downstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-013	
Date: June 22, 2023	
Description: Perennial Stream Facing Substrate	

S-MRK-018	
Date: June 27, 2023	
Description: Perennial Stream Facing Upstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-018	
Date: June 27, 2023	
Description: Perennial Stream Facing Downstream	

S-MRK-018	
Date: June 27, 2023	
Description: Perennial Stream Facing Substrate	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-020	
Date: September 11, 2023	
Description: Perennial Stream Facing Upstream	

S-MRK-020	
Date: September 11, 2023	
Description: Perennial Stream Facing Downstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-020	
Date: September 11, 2023	
Description: Perennial Stream Facing Substrate	

S-MRK-021	
Date: September 11, 2023	
Description: Ephemeral Stream Facing Upstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-021	
Date: September 11, 2023	
Description: Ephemeral Stream Facing Downstream	

S-MRK-021	
Date: September 11, 2023	
Description: Ephemeral Stream Facing Substrate	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-022	
Date: September 11, 2023	
Description: Perennial Stream Facing Upstream	

S-MRK-022	
Date: September 11, 2023	
Description: Perennial Stream Facing Downstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-022	
Date: September 11, 2023	
Description: Perennial Stream Facing Substrate	

S-MRK-024	
Date: September 11, 2023	
Description: Intermittent Stream Facing Upstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-024	
Date: September 11, 2023	
Description: Intermittent Stream Facing Downstream	

S-MRK-024	
Date: September 11, 2023	
Description: Intermittent Stream Facing Substrate	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-025	
Date: September 11, 2023	
Description: Intermittent Stream Facing Upstream	

S-MRK-025	
Date: September 11, 2023	
Description: Perennial Stream Facing Downstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-025	
Date: September 11, 2023	
Description: Intermittent Stream Facing Substrate	

S-MRK-026	
Date: September 12, 2023	
Description: Intermittent Stream Facing Upstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-026	
Date: September 12, 2023	
Description: Intermittent Stream Facing Downstream	

S-MRK-026	
Date: September 12, 2023	
Description: Intermittent Stream Facing Substrate	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

S-MRK-027	
Date: September 12, 2023	
Description: Ephemeral Stream Facing Upstream	

S-MRK-027	
Date: September 12, 2023	
Description: Ephemeral Stream Facing Downstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-027	
Date: September 12, 2023	
Description: Ephemeral Stream Facing Substrate	

S-MRK-028	
Date: September 12, 2023	
Description: Intermittent Stream Facing Upstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-028	
Date: September 12, 2023	
Description: Intermittent Stream Facing Downstream	

S-MRK-028	
Date: September 12, 2023	
Description: Intermittent Stream Facing Substrate	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-029	
Date: September 12, 2023	
Description: Intermittent Stream Facing Upstream	

S-MRK-029	
Date: September 12, 2023	
Description: Intermittent Stream Facing Downstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-029	
Date: September 12, 2023	
Description: Intermittent Stream Facing Substrate	

S-MRK-030	
Date: September 14, 2023	
Description: Intermittent Stream Facing Upstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-030	
Date: September 14, 2023	
Description: Intermittent Stream Facing Downstream	

S-MRK-030	
Date: September 14, 2023	
Description: Intermittent Stream Facing Substrate	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-032	
Date: December 05, 2023	
Description: Intermittent Stream Facing Upstream	

S-MRK-032	
Date: December 05, 2023	
Description: Intermittent Stream Facing Downstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

S-MRK-032	
Date: December 05, 2023	
Description: Intermittent Stream Facing Substrate	

S-MRK-033	
Date: September 14, 2023	
Description: Intermittent Stream Facing Upstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-MRK-033	
Date: September 14, 2023	
Description: Intermittent Stream Facing Downstream	

S-MRK-033	
Date: September 14, 2023	
Description: Intermittent Stream Facing Substrate	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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S-AGS-001	
Date: January 28, 2025	
Description: Ephemeral Stream Facing Upstream	

S-AGS-001	
Date: January 28, 2025	
Description: Ephemeral Stream Facing Downstream	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

S-AGS-001	
Date: January 28, 2025	
Description: Ephemeral Stream Facing Substrate	

APPENDIX C**Pond Photographic Record**

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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Pond-MRK-001	
Date: June 27, 2023	
Description: Pond Facing South	

Pond-MRK-002	
Date: September 11, 2023	
Description: Pond Facing West	

APPENDIX D**Upland Drainage Feature Photographic Record**

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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UDF-MRK-004	
Date: June 15, 2023	
Description: Upland Drainage Feature Facing East	

UDF-MRK-004	
Date: June 15, 2023	
Description: Upland Drainage Feature Facing West	

PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name:

AEP

Site Location:

Vassell – Curleys 345 kV Transmission Line Project

Project No.

60702698

UDF-MRK-004

Date:

June 15, 2023

Description:

Upland Drainage
Feature

Facing Substrate



UDF-MRK-005

Date:

June 15, 2023

Description:

Upland Drainage
Feature

Facing East



PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-005	
Date: June 15, 2023	
Description: Upland Drainage Feature Facing West	

UDF-MRK-005	
Date: June 15, 2023	
Description: Upland Drainage Feature Facing Substrate	

Client Name:
AEP

Site Location:
Vassell – Curleys 345 kV Transmission Line Project

Project No.
60702698

UDF-MRK-006

Date:

June 15, 2023

Description:

Upland Drainage
Feature

Facing North



UDF-MRK-006

Date:

June 15, 2023

Description:

Upland Drainage
Feature

Facing South



PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-006	
Date: June 15, 2023	
Description: Upland Drainage Feature Facing Substrate	

UDF-MRK-007	
Date: June 15, 2023	
Description: Upland Drainage Feature Facing Northwest	

PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-007	
Date: June 15, 2023	
Description: Upland Drainage Feature Facing Southeast	

UDF-MRK-007	
Date: June 15, 2023	
Description: Upland Drainage Feature Facing Substrate	

PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-012	
Date: June 21, 2023	
Description: Upland Drainage Feature Facing East	

UDF-MRK-012	
Date: June 21, 2023	
Description: Upland Drainage Feature Facing West	

PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-012	
Date: June 21, 2023	
Description: Upland Drainage Feature Facing Substrate	

UDF-MRK-013	
Date: June 22, 2023	
Description: Upland Drainage Feature Facing North	

PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record**Client Name:**

AEP

Site Location:

Vassell – Curleys 345 kV Transmission Line Project

Project No.

60702698

UDF-MRK-013**Date:**

June 22, 2023

Description:Upland Drainage
Feature

Facing South

**UDF-MRK-013****Date:**

June 22, 2023

Description:Upland Drainage
Feature

Facing Substrate



PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name:

AEP

Site Location:

Vassell – Curleys 345 kV Transmission Line Project

Project No.

60702698

UDF-MRK-014

Date:

June 22, 2023

Description:

Upland Drainage
Feature

Facing North



UDF-MRK-014

Date:

June 22, 2023

Description:

Upland Drainage
Feature

Facing South



PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-014	
Date: June 22, 2023	
Description: Upland Drainage Feature Facing Substrate	

UDF-MRK-015	
Date: June 22, 2023	
Description: Upland Drainage Feature Facing East	

PHOTOGRAPHIC RECORD

Upland Drainage Feature (UDF)

Photograph Record

Client Name:

AEP

Site Location:

Vassell – Curleys 345 kV Transmission Line Project

Project No.

60702698

UDF-MRK-015

Date:

June 22, 2023

Description:

Upland Drainage
Feature

Facing West



UDF-MRK-015

Date:

June 22, 2023

Description:

Upland Drainage
Feature

Facing Substrate



PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-016	
Date: June 22, 2023	
Description: Upland Drainage Feature Facing East	

UDF-MRK-016	
Date: June 22, 2023	
Description: Upland Drainage Feature Facing West	

PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-016	
Date: June 22, 2023	
Description: Upland Drainage Feature Facing Substrate	

UDF-MRK-017	
Date: June 22, 2023	
Description: Upland Drainage Feature Facing North	



Imagine it.
Delivered.

PHOTOGRAPHIC RECORD

Upland Drainage Feature (UDF)

Photograph Record

Client Name:

AEP

Site Location:

Vassell – Curleys 345 kV Transmission Line Project

Project No.

60702698

UDF-MRK-017

Date:

June 22, 2023

Description:

Upland Drainage
Feature

Facing South



UDF-MRK-017

Date:

December 01, 2023

Description:

Upland Drainage
Feature

Facing Substrate



PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-031	
Date: December 01, 2023	
Description: Upland Drainage Feature Facing West	

UDF-MRK-031	
Date: December 01, 2023	
Description: Upland Drainage Feature Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
----------------------------	---	--------------------------------

UDF-MRK-031	
Date: December 01, 2023	
Description: Upland Drainage Feature Facing Substrate	

UDF-MRK-032	
Date: December 01, 2023	
Description: Upland Drainage Feature Facing West	

Client Name:
AEP

Site Location:
Vassell – Curleys 345 kV Transmission Line Project

Project No.
60702698

UDF-MRK-032

Date:

December 01, 2023

Description:

Upland Drainage
Feature

Facing East



UDF-MRK-032

Date:

December 01, 2023

Description:

Upland Drainage
Feature

Facing Substrate



PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name:

AEP

Site Location:

Vassell – Curleys 345 kV Transmission Line Project

Project No.

60702698

UDF-AGS-001

Date:

January 28, 2025

Description:

Upland Drainage
Feature

Facing West



UDF-AGS-001

Date:

January 28, 2025

Description:

Upland Drainage
Feature

Facing East



PHOTOGRAPHIC RECORD
Upland Drainage Feature (UDF)
Photograph Record

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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UDF-AGS-001	
Date: January 28, 2025	
Description: Upland Drainage Feature Facing Substrate	

APPENDIX E**Habitat Photographic Record**

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-1	
Date: September 11, 2023	
Description: Old Field Facing East	

PH-2	
Date: September 11, 2023	
Description: Woodlands Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-3	
Date: September 11, 2023	
Description: Hayfield Facing East	

PH-4	
Date: September 11, 2023	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-5	
Date: December 05, 2023	
Description: Agriculture Facing East	

PH-6	
Date: December 05, 2023	
Description: Agriculture Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-7	
Date: September 11, 2023	
Description: Hayfield Facing East	

PH-8	
Date: September 12, 2023	
Description: Wetland Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-9	
Date: September 12, 2023	
Description: Agriculture Row-Crop Facing East	

PH-10	
Date: September 12, 2023	
Description: Agriculture Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-11	
Date: September 12, 2023	
Description: Wetland Facing East	

PH-12	
Date: September 12, 2023	
Description: Woodland-Deciduous Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-13	
Date: September 12, 2023	
Description: Agriculture Row-Crop Facing East	

PH-14	
Date: September 12, 2023	
Description: Forest / Deciduous Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-15	
Date: June 21, 2023	
Description: Agriculture Row-Crop Facing West	

PH-16	
Date: June 22, 2023	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-17	
Date: June 22, 2023	
Description: Agriculture Row-Crop Facing East	

PH-18	
Date: June 22, 2023	
Description: Agriculture Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-19	
Date: June 22, 2023	
Description: Agriculture Row-Crop Facing East	

PH-20	
Date: June 22, 2023	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-21	
Date: June 22, 2023	
Description: Agriculture Facing North	

PH-22	
Date: September 12, 2023	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-23	
Date: September 12, 2023	
Description: Agriculture Facing East	

PH-24	
Date: September 12, 2023	
Description: Woodland - Deciduous Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-25	
Date: September 12, 2023	
Description: Woodland - Deciduous Facing East	

PH-26	
Date: January 31, 2024	
Description: Woodland - Deciduous Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-27	
Date: September 11, 2023	
Description: Agriculture Facing South	

PH-28	
Date: June 22, 2023	
Description: Pasture Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-29	
Date: June 22, 2023	
Description: Agriculture Facing East	

PH-30	
Date: June 22, 2023	
Description: Agriculture Facing East	


Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-31	
Date: June 22, 2023	
Description: Woodlands/ Facing East	

PH-32	
Date: June 22, 2023	
Description: Wetland Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-33	
Date: December 05, 2023	
Description: Woodland–Deciduous Facing North	

PH-34	
Date: June 22, 2023	
Description: Agriculture Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-35	
Date: December 05, 2023	
Description: Agriculture Facing East	

PH-36	
Date: October 18, 2023	
Description: Agriculture Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-37	
Date: June 21, 2023	
Description: Agriculture Row-Crop Facing East	

PH-38	
Date: September 13, 2023	
Description: Wetland Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-39	
Date: September 13, 2023	
Description: Agriculture Row-Crop Facing East	

PH-40	
Date: September 13, 2023	
Description: Old Field Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-41	
Date: September 13, 2023	
Description: Wetland Facing East	

PH-42	
Date: September 13, 2023	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-43	
Date: September 13, 2023	
Description: Agriculture Facing East	

PH-44	
Date: June 22, 2023	
Description: Agriculture Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-45	
Date: September 12, 2023	
Description: Landscaped Facing East	

PH-46	
Date: December 06, 2023	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-47	
Date: September 12, 2023	
Description: Woodland – Deciduous Facing East	


PH-48	
Date: December 06, 2023	
Description: Agriculture Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-49	
Date: January 30, 2024	
Description: Agriculture Facing East	

PH-50	
Date: June 15, 2023	
Description: Agriculture Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-51	
Date: June 15, 2023	
Description: Agriculture Row-Crop Facing West	

PH-52	
Date: June 15, 2023	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-53	
Date: June 15, 2023	
Description: Woodlands-Deciduous Facing South	

PH-54	
Date: June 15, 2023	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-55	
Date: June 27, 2023	
Description: Agriculture Row-Crop Facing West	

PH-56	
Date: June 27, 2023	
Description: Woodland – Deciduous Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-57	
Date: June 27, 2023	
Description: Agriculture Row-Crop Facing East	

PH-58	
Date: June 27, 2023	
Description: Stream Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-59	
Date: June 27, 2023	
Description: Agriculture Row-Crop Facing South	

PH-60	
Date: June 27, 2023	
Description: Woodlands and Agriculture Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-61	
Date: September 14, 2023	
Description: Agriculture Facing North	

PH-62	
Date: June 27, 2023	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-63	
Date: September 14, 2023	
Description: Pasture and Woodland Facing East	

PH-64	
Date: June 27, 2023	
Description: Wetland Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-65	
Date: June 27, 2023	
Description: Agriculture Facing South	

PH-66	
Date: January 31, 2024	
Description: Agriculture Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-67	
Date: September 13, 2023	
Description: Pasture/Hay Field Facing South	

PH-68	
Date: September 13, 2023	
Description: Pasture/Hay Field Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-69	
Date: June 21, 2023	
Description: Agriculture Facing South	

PH-70	
Date: June 21, 2023	
Description: Agriculture Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-71	
Date: September 14, 2023	
Description: Agriculture Facing North	

PH-72	
Date: June 21, 2023	
Description: Agriculture Row-Crop Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-73	
Date: June 21, 2023	
Description: Agriculture Row-Crop Facing West	

PH-74	
Date: June 21, 2023	
Description: Agriculture Row-Crop Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-75	
Date: June 21, 2023	
Description: Agriculture Row-Crop Facing South	

PH-76	
Date: September 12, 2023	
Description: Agriculture Row-Crop Facing North	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-77	
Date: September 12, 2023	
Description: Agriculture Row-Crop Facing East	


PH-78	
Date: June 22, 2023	
Description: Landscaped Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-99	
Date: January 28, 2025	
Description: Landscaped Facing East	

PH-100	
Date: January 28, 2025	
Description: Old Field Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-101	
Date: January 28, 2025	
Description: Woodland Facing South	

PH-102	
Date: January 29, 2025	
Description: Old Field Facing South	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-103	
Date: January 28, 2025	
Description: Woodland Facing South	

PH-104	
Date: January 29, 2025	
Description: Old Field Facing West	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-105	
Date: January 29, 2025	
Description: Old Field Facing East	

PH-106	
Date: January 29, 2025	
Description: Agriculture Row-Crop Facing East	

Client Name: AEP	Site Location: Vassell – Curleys 345 kV Transmission Line Project	Project No. 60702698
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PH-107	
Date: January 29, 2025	
Description: Woodland Facing North	

PH-108	
Date: January 29, 2025	
Description: Agriculture Row-Crop Facing West	

APPENDIX F**Agency Correspondence**



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate

Tara Paciorek, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6661
Fax: (614) 267-4764

October 13, 2023

Anna Findish
AECOM
707 Grant Street
Pittsburgh, Pennsylvania 15219

Re: 23-1067; Vassell - Green Chapel South Enhancement

Project: The proposed project involves the implementation of improvements between the existing Vassell Station and a proposed station (approximately 12.9 miles).

Location: The proposed project is located in Berkshire, Trenton, and Harlem townships, Delaware County, Plain Township, Franklin County, and Monroe and Jersey townships, Licking 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: A review of the Ohio Natural Heritage Database indicates there are no records of state or federally listed plants or animals within one mile of the specified project area. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

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 portion of the project south of Duncan Plains Road is within the vicinity of records for the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species. Because presence of state endangered bat species has been established in this area, summer tree cutting is not recommended, and additional summer surveys would not constitute

presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, 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 endangered 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 bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. The DOW recommends tree 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. However, if trees are present within this area, (outside of the area delineated above) 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 the DOW.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS “[RANGE-WIDE INDIANA BAT & NORTHERN LONG-EARED BAT SURVEY GUIDELINES](#).” If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza, 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 the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

This project is within the range of the following listed mussel species.

Federally Endangered

rayed bean (*Villosa fabalis*)

snuffbox (*Epioblasma triquetra*)

Federally Threatened

rabbitsfoot (*Quadrula cylindrica cylindrica*)

State Threatened

Salamander Mussel (*Simpsonaias ambigua*)

pondhorn (*Unio merus tetralasmus*)

This project must not have an impact on native mussels. This applies to both listed and non-listed species, as all species of mussel are protected in Ohio. Per the Ohio Mussel Survey Protocol (2022), 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. 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, 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](#). If there is no in-water work proposed, impacts to mussels are not likely.

The DOW recommends no in-water work in perennial streams from March 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 aquatic species.

The project is within the range of the northern harrier (*Circus hudsonius*), 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 April 15 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

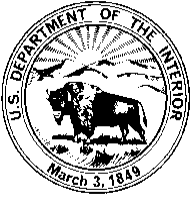
Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

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

The [local floodplain administrator](#) should be contacted concerning the possible need for any floodplain permits or approvals for this project.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994



September 11, 2023

Project Code: 2023-0125899

Dear Anna Findish:

The U.S. Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened, endangered, and proposed species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

Federally Proposed Species: On September 14, 2022, the Service proposed to list the tricolored bat (*Perimyotis subflavus*) as endangered under the ESA. The bat faces extinction due to the impacts of white-nose syndrome, a deadly disease affecting cave-dwelling bats across the continent. During spring, summer, and fall, this species roosts primarily among leaf clusters of live or recently dead trees, emerging at dusk to hunt for insects over waterways and forest edges. While white-nose syndrome is by far the most serious threat to the tricolored bat, other threats now have an increased significance due to the dramatic decline in the species' population. These threats include disturbance to bats in roosting, foraging, commuting, and over-wintering habitats. Mortality due to collision with wind turbines, especially during migration, has also been documented across their range. Conservation measures for the Indiana bat and northern long-eared bat will also help to conserve the tricolored bat.

Seasonal Tree Clearing for Federally Listed Bat Species: Should the proposed project site contain trees ≥ 3 inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, we recommend removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats.

If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats and northern long-eared bats. If Indiana bats and northern long-eared bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend 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. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or 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, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.ohio.gov.

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 that reads "Scott Hicks". The signature is written in a cursive style.

Scott Hicks
Acting Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Eileen Wyza, ODNR-DOW

APPENDIX G**2024 Joint Guidance**



OHIO DIVISION OF WILDLIFE AND U.S. FISH AND WILDLIFE SERVICE (OH-FIELD OFFICE) JOINT GUIDANCE FOR BAT SURVEYS AND TREE CLEARING MAY 2024

This document has been updated with new state guidance for the 2024 field season.

This guidance applies to state recommendations only. Contact the USFWS to determine if federal consultation is also necessary to comply with federal law.

Agency Contacts:

ODNR-DOW Permit Coordinator: Wildlife.Permits@dnr.ohio.gov, (614) 265-6315

ODNR-DOW Bat Survey Coordinator: Eileen Wyza, Eileen.Wyza@dnr.ohio.gov, (614) 265-6764

USFWS OHFO Endangered Species: Angela Boyer, angela_boyer@fws.gov, (614) 416-8993, ext.122

Covid-19 Guidance:

Surveyors should follow all covid protocols put in place by their agency. All surveyors should wear masks when handling bats and anyone exhibiting symptoms of covid-19 should not participate in bat surveys.

Ohio Mist-net Surveys:

This document serves as guidance for bat mist netting activities in Ohio and does not supersede any requirements listed on your permits or facility certificate. All permit conditions must be strictly adhered to for permits to be valid and for renewal of permits beyond the existing year.

Due to the presence of White-nose Syndrome (WNS), mist-netting in Ohio must be conducted between June 1 and August 15 unless stated otherwise in your state permit. The ODNR Division of Wildlife (ODNR-DOW) and U.S. Fish and Wildlife Service (USFWS) Ohio Field Office (OHFO) have determined that delaying netting activities until June 1 will provide additional recovery time for bats affected by WNS. For presence/probable absence surveys, netting will not be accepted outside of the June 1 - August 15 timeframe.

To assess project areas for presence or probable absence of the state and federally listed Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) during summer residency, the USFWS developed the USFWS Range-wide Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines (March 2024). This protocol may also be used for the tricolored bat (*Perimyotis subflavus*) which is state endangered and proposed to be federally endangered. **With minor modifications referenced below**, it can also be used in Ohio for the 2024 field season and includes surveying for the state-listed little brown bat (*Myotis lucifugus*).

According to the updated federal range-wide guidelines, presence/probable absence net surveys for northern long-eared bats or federally-proposed tricolored bats shall incorporate either 10 net nights per square 0.5 kilometer (123

acres) of project area, or four net nights per kilometer for linear projects. Presence/probable absence net surveys for Indiana bats shall incorporate six net nights per square 0.5 kilometer (123 acres) of project area, or two net nights per kilometer for linear projects. If a project area is eligible for a presence/probable absence survey for both Indiana bats and northern long-eared bats or tricolored bat, following the northern long-eared/tricolored bat level of effort will qualify as a presence/ probable absence survey for the three species. However, if a project area is eligible for a presence/absence survey for the three species, following the Indiana bat level of effort will not qualify the survey for a northern long-eared bat or tricolored bat presence/probable absence survey. Please note that the USFWS Range-wide Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines (March 2024) requires that a minimum of two (2) biologists (e.g., one permitted and one technician) must be on-site for every four (4) net-sets being operated. Exceptions to on-site minimum staffing levels may be allowed under extenuating circumstances, provided written justification is included in the proposed survey study plan and subsequently approved by the OHFO and ODNR-DOW.

Due to the reclassification of the northern long-eared bat to federally endangered on March 31, 2023, the northern long-eared bat 4(d) rule has been nullified. There is a new online tool in the USFWS's Information for Planning and Consultation (IPaC) website that allows project proponents to utilize the optional Northern Long-eared Bat Rangewide Determination Key (Dkey). **The Dkey cannot be used to replace consultation with ODNR-DOW.** Project proponents should coordinate directly with the ODNR-DOW for project technical assistance for all federally listed species, including the Indiana bat and northern long-eared bat. **OHFO discourages the use of the Dkey for Ohio projects.** Contacting OHFO directly (ohio@fws.gov) for technical assistance for both the northern long-eared bat and Indiana bat is the more efficient process.

The tricolored bat is listed as endangered by ODNR-DOW and has been officially proposed for federal listing as endangered. The USFWS is scheduled to publish a final rule on the tricolored bat's status by the end of September 2024. Therefore, in addition to coordinating with ODNR-DOW regarding the tricolored bat, we recommend that project proponents also coordinate with the OHFO. The USFWS Range-wide Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines (March 2024) allows presence/absence surveys for the tricolored bat that use the northern long-eared bat level of effort.

Exception for Ohio mist-net surveys: All presence/absence surveys conducted for state listed bat species (Indiana, northern long-eared, little brown, tricolored) should follow the highest minimum net nights set forth in the federal guidance to be considered valid by ODNR-DOW. Any modifications to this position will be communicated at the time of the site authorization approval.

Ohio Acoustic Surveys:

Acoustic bat surveys for presence/absence will be accepted by ODNR-DOW for the 2024 season. Surveys should follow guidelines laid out in the USFWS Range-wide Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines (March 2024) with the following exceptions:

- Ohio survey dates are June 1 – August 15
- After conducting automated analyses using one or more of the currently available 'approved' acoustic bat ID programs¹, qualitative analysis (i.e., manual vetting) of any calls recorded from state-endangered species (*M. sodalis*, *M. septentrionalis*², *M. lucifugus*², and *P. subflavus*²) must be completed.
- **All presence/absence acoustic surveys conducted for state listed bat species (Indiana, northern long-eared, little brown, tricolored) should follow the highest minimum acoustic nights set forth in the federal guidance to be considered valid by ODNR-DOW. Any modifications to this position will be communicated at the time of the site authorization approval.**

¹ <https://www.fws.gov/media/indiana-bat-summer-survey-guidance>

² State listing as endangered effective July 1, 2020

At a minimum, for each detector site/night a program considered presence of state-listed bats likely, review all files (including no IDs) from that site/night. If more than one acoustic bat ID program is used, qualitative analysis must also include a comparison of the results of each program by site and night.

Combined Mist-netting and Acoustic Surveys:

ODNR-DOW will accept the USFWS pilot survey option of combining mist-netting and acoustic surveys for traditional survey sites (e.g., 123-acre area) detailed in Appendix I of the USFWS Range-wide Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines (2024). All presence/absence combined mist-net and acoustic surveys conducted for state listed bat species should follow the highest minimum level of effort set forth by the federal guidance to be considered valid by ODNR-DOW. Any modifications to this position will be communicated at the time of the site authorization approval.

Before Field Season:

- Anyone surveying bats using mist-nets in the state of Ohio must obtain a federal permit as well as a state scientific collection permit. The federal permit should include both the Indiana bat and the northern long-eared bat.
- Your ODNR-DOW permit consists of two documents: a Scientific Collector (Wild Animal) Permit and an endangered species letter signed by the Chief of the Division of Wildlife (in addition to your federal permit). Both ODNR-DOW documents must be obtained prior to field work and kept with you and any sub-permittees during field work.

During Field Season:

- Prior to initiation of field work (a minimum of two weeks in advance), permittees must provide proposed mist netting plans to USFWS and ODNR-DOW in the form of an e-mail letter to the USFWS OHFO and copy to the ODNR-DOW Bat Survey Coordinator. Plans must be reviewed and approved by USFWS OHFO and ODNR-DOW before ANY surveys take place. Study plans must specify objectives, location details, dates of proposed work, and all other relevant details. **Study plans must also include a USFWS Project Code. Project Codes can only be obtained by requesting an official species list through the USFWS's Information for Planning and Consultation (IPaC) website: (<https://ipac.ecosphere.fws.gov/>).** When handling bats, you must strictly adhere to the current WNS Decontamination Protocol (current version can be found at <https://www.whitenosesyndrome.org/topics/decontamination>). Clothing, boots, gear, and equipment should all be thoroughly decontaminated between nights, as well as between netting sites.
- Request bat bands at least two weeks in advance of needing them. Bat bands can be obtained by e-mailing the ODNR-DOW Bat Survey Coordinator with how many bands are needed, current permit number, sizes, and a mailing address. Bands will not be issued until your permits are valid. We have three sizes of bands—2.4 mm, 2.9 mm, and 4.2 mm. The 2.4 mm split metal bat ring made of aluminum alloy is suitable for banding tricolored bats. 2.9 mm bands are suitable for Indiana, northern long-eared, and little brown bats. The larger 4.2 mm band is suitable for silver-haired (*Lasiurus noctivagans*), big brown (*Eptesicus fuscus*), and hoary (*Lasiurus cinereus*) bats. You must band all Indiana, northern long-eared, little brown, and tricolored bats with ODNR-DOW bands; therefore, you should not be in the field without the 2.4 mm and 2.9 mm sized bands.
NOTE: While ODNR-DOW obtains 2.9 mm bands per new 2024 USFWS guidelines, banding of endangered *Myotis* species should not be done until 2.9 mm bands are received. Please watch for updates from the Wildlife Permits email and request 2.9 mm bands when they become available.
- Only individuals who are named on the ODNR-DOW endangered species letter portion of the permit and on the corresponding federal bat permit may conduct and oversee mist-net surveys. Trained assistants may work on permitted bat activities under the direct and on-site supervision of a named permittee. All bat IDs must be verified by a named permittee. If an Indiana bat, northern long-eared bat, and/or tricolored bat is captured, the permittee shall notify the USFWS and the ODNR-DOW Bat Survey Coordinator referenced

above within 48 hours via email. If a little brown bat is captured, notify the ODNR-DOW Bat Survey Coordinator only within 48 hours via email. Reports of listed bat captures should include specific information such as spatial location of capture, band information, radio-transmitter frequency information, sex, reproductive status, and age of individual.

- For presence/absence surveys, ODNR-DOW requires all female and juvenile state endangered and threatened bat species (Indiana, northern long-eared, little brown, and tricolored bat) be radio-tracked if caught, in accordance with methods outlined in Appendix D of USFWS 2024 Range-wide Indiana Bat Summer Survey Guidelines.

If you are taking any biological samples (tissue, fur, blood, etc.), this must be specifically authorized in your state and federal permits and noted in your survey proposal.

After Field Season:

By March 15, you must submit your final ODNR-DOW report(s) from the previous summer. You are not required to fill out the ODNR-DOW Wildlife Diversity Bat Excel Spreadsheet; instead, please forward your USFWS Midwestern US Spreadsheet (found here: <https://www.fws.gov/media/bat-reporting-spreadsheets>) to the ODNR-DOW Bat Survey Coordinator and ODNR-DOW Permit Coordinator and include your state permit number along with an electronic copy of the project report. Electronic summaries emailed during the field season are NOT considered as full compliance of this reporting requirement.

Ohio Environmental Review Recommendations for projects involving disturbance near potential/known bat hibernacula (cliffs, caves, mines) or tree cutting:

Step 1: Coordinate with Ohio Division of Wildlife regarding existing records for state-listed endangered bat summer and/or winter occurrence information. Potential hibernacula found during a habitat assessment must address possible suitability for Indiana bats, northern long-eared bats, tricolored bats, and little brown bats.

If project site contains a known bat hibernaculum(a) –

- Both the DOW and USFWS should be contacted for guidance on projects occurring:
 - Within 5 miles of known or potential Indiana bat and/or northern long-eared bat hibernacula.
 - Within 3 miles of known or potential tricolored bat hibernacula
- Only ODNR-DOW should be contacted if a project occurs within 5 miles of known or potential little brown bat hibernacula.

If a project site does not contain known bat hibernaculum(a) –

- Conduct a desktop habitat assessment of the project area. Tools such as the [ODNR Mines of Ohio Viewer](#), [Karst Interactive Map](#), topographic maps, aerial photos, historical records, etc. should be used to determine if there are any potential caves, mines, karst features, rock ledges, or other features that may serve as potential hibernacula.
- If no such features are found, proceed to **Step 2**.
- If potential hibernacula are found during the desktop assessment:
 - Assume bats are using these hibernacula and refrain from clearing trees from March 15 - Nov 15

OR

- Conduct a field habitat assessment to determine if a potential hibernaculum(a) is present within the action area. We encourage impacts to ledges and rock outcroppings be avoided. If impacts cannot be avoided, features should be evaluated for potential roosting characteristics such as recesses, overhangs, and crevices.

- **NOTE:** The USFWS Range-wide Indiana Bat Guidelines, Appendix H, contains instructions for completing a habitat assessment for Indiana bat, but can be applied to other bat species.

Step 2: Conduct, a presence/absence survey following current ODNR-DOW guidelines, where applicable.

Step 3: If a state-listed endangered bat is captured or recorded during the survey:

- Recommendation of no summer tree cutting, or limited cutting following guidelines detailed below, within 5 miles of an Indiana bat or little brown bat capture or 3 miles of a northern long-eared bat and/or tricolored bat capture if a roost is not located.
- Recommendation of no summer tree cutting, or limited cutting following guidelines detailed below, within a minimum of 2.5 miles of an Indiana bat or little brown bat roost or 1.5 miles of a northern long-eared bat and/or tricolored bat roost tree if located.
- Recommended tree clearing dates within capture record buffers are October 1 – March 31

If no state-listed endangered bat is captured or recorded during the survey:

- Summer tree cutting may proceed for 5 years before a new survey is needed under state guidance.

Limited summer tree cutting guidance for little brown bats: Limited tree cutting in summer may be permitted after consultation with ODNR-DOW, but clearing trees with the following characteristics should be avoided unless they pose a hazard: dead or live trees of any size with loose, shaggy bark; crevices, holes, or cavities; clusters of dead leaves; live trees of any species with DBH \geq 20".

FREQUENTLY ASKED QUESTIONS

When does the ODNR-DOW Bat Survey protocol have to be used?

This protocol should be used anytime Indiana bat, northern long-eared bat, little brown bat, or tricolored bat summer presence/probable absence surveys are conducted in the state of Ohio.

How many detector nights are required for presence/probable absence acoustic surveys?

As described in the current USFWS Range-wide Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines:

Level of effort for all state-listed endangered bat species: follow highest minimum detector nights as outlined in the federal guidance for northern long-eared bat and tricolored bat.

Northern Long-eared Bat and Tricolored Bat Level of Effort:

Linear projects: a minimum of 4 detector nights per km (0.6 miles) of suitable summer habitat

Non-linear projects: a minimum of 10 detector nights per 123 acres (0.5 km²) of suitable summer habitat.

At least 2 detector locations per 123 acre "site" shall be sampled until at least 10 detector nights has been completed over the course of at least 2 calendar nights (may be consecutive). For example:

- 5 detectors for 2 nights each (can sample the same location or move within the site)
- 2 detectors for 5 nights each (can sample the same location or move within the site)
- 1 detector for 10 nights (must sample at least 2 locations and move within the site – we recommend evenly distributing LOE among locations)

Indiana Bat Level of Effort:

Linear projects: a minimum of 2 detector nights per km (0.6 miles) of suitable summer habitat

Non-linear projects: a minimum of 6 detector nights per 123 acres (0.5 km²) of suitable summer habitat.

At least 2 detector locations per 123 acre "site" shall be sampled until at least 6 detector nights has been completed over the course of at least 2 calendar nights (may be consecutive). For example:

- 3 detectors for 2 nights each (can sample the same location or move within the site)
- 2 detectors for 3 nights each (can sample the same location or move within the site)
- 1 detector for 6 nights (must sample at least 2 locations and move within the site – we recommend evenly distributing LOE among locations)

How many net surveys are required for presence/probable absence?

Level of effort for all state-listed endangered bat species including Indiana bat and northern long-eared bats: Follow highest minimum net nights as outlined in the federal guidance for the northern long-eared bat and tricolored bat.

Net surveys for northern long-eared bat presence/probable absence shall incorporate, at a minimum, either 10 net nights per square 0.5 kilometer (123 acres) of project area, or four net nights per kilometer for linear projects. For linear projects, there must be at least one net night of survey on two different nights (minimum of two nights). This does not allow for two net nights on a single night for surveys.

Net surveys for Indiana bat presence/probable absence shall incorporate, at a minimum, either six net nights net nights per square 0.5 kilometer (123 acres) of project area, or two net nights per kilometer for linear projects. For

linear projects, there must be at least one net night of survey on two different nights (minimum of two nights). This does not allow for two net nights on a single night for surveys.

How long are the results of the surveys valid for an assessment of an area?

Mist-net or acoustic surveys documenting probable absence of state-listed endangered bats are valid for five years.

When can acoustic or net surveys occur in Ohio?

In Ohio, acoustic or net surveys may only be conducted from June 1 through August 15 unless indicated otherwise in your state permit. Any surveys outside of the June 1 - August 15 timeframe cannot be used in Ohio to assess the presence/probable absence of state-listed bats.

Can a presence/probable absence survey be conducted within a known bat capture/detection buffer?

Surveys generally cannot be used to document presence/probable absence of state-listed endangered bats where presence of the species has already been confirmed by prior surveys.

What if a project is proposing to clear trees between April 1 and September 30 when bats may be present but no bat records exist in the project area?

Any Ohio project that is not within a known bat record buffer, and tree clearing between April 1 and September 31 is being proposed, may have a presence/probable absence survey conducted between June 1 and August 15 following the range-wide guidance. If a presence/probable absence survey is not performed, presence of listed bats is assumed.

Where do I get bands?

If you need bands, email the ODNR-DOW Bat Survey Coordinator at least two weeks in advance with your current ODNR permit number, how many bands in each size (2.4 mm, 2.9 mm, and 4.2 mm) you will need this season, and a current address to ship the bands.

Do I have to band every bat?

No, currently this is optional. However, you are required as per your state permit to band all Indiana, northern long-eared, little brown, and tricolored bats.

NOTE: While ODNR-DOW obtains 2.9 mm bands per new 2024 USFWS guidelines, banding of endangered *Myotis* species should not be done until 2.9 mm bands are received. Please watch for updates from the Wildlife Permits email and request 2.9 mm bands when they become available.